34TH AMERICA'S CUP
ZERO WASTE PLAN

For the 2012 and 2013 Regattas
on San Francisco Bay

Prepared for the San Francisco Department of the Environment

December 2011

34th America's Cup
Zero Waste Plan

Prepared by Environmental Science Associates

Cover Photo by Gilles Martin-Raget and SF Environment

ZERO WASTE PLAN

		Page
1.	**Executive Summary**	**1.1**
2.	**Introduction**	**2.1**
2.1	Purpose of the Zero Waste Plan	2.1
2.2	Definitions	2.2
2.3	Scope and Content of the Zero Waste Plan	2.3
	2.3.1 Wastewater Not Included	2.3
	2.3.1 Organization of Zero Waste Plan	
3. Policies and Ordinances		**3.1**
3.1	San Francisco Zero Waste Policy	3.1
3.2	Local Ordinances and Requirements	3.1
	3.2.1. Local Ordinances and Requirements	3.1
	3.2.2 Green Building Ordinance: Space Requirements	3.2
	3.2.3 Mandatory Recycling	3.2
	3.2.4 Food Service Ware	3.2
	3.2.5 Special Event Recycling	3.3
3.3	Meeting the Zero Waste Goal	3.4
4. Management of Discards from Support Activities		**4.1**
4.1	Introduction	4.1
4.2	Activities, Requirements, and Resources	4.2
	4.2.1 Demolition and Construction Work on Piers	4.2
	4.2.2 Reuse of Temporary Piers	4.4
	4.2.3 Design and Construction of Buildings and Structure	4.5
	4.2.4 Moored Spectator Vessels	4.6
	4.2.5 International Waste	4.7
	4.2.6 Maintenance of A.C. Watercraft: Crew Services	4.8
	4.2.7 Race Operations and Media Headquarters	4.9
5. Management of Discards From Spectator-Related Activities		**5.1**
5.1 Introduction		5.1
	5.1.1 Types of Venues and Types of Discards	5.1
	5.1.2 National Park Services Active and Passive Site Locations	5.2
	5.1.3 Key Messages and Messaging Opportunities	5.3
	5.1.4 Key Message: Source Reduction	5.4
	5.1.5 Key Message: Landfill Diversion	5.5
	5.1.6 Key Message: Marine and Coastal Stewardship	5.6
	5.1.7 Signage Standards	5.7
	5.1.8 Vendor Guidelines	5.8
	5.1.9 Collection Methods	5.11
	5.1.0 Use of Performance Plan for 2013	5.12
5.2 Activities, Requirements, and Resources		5.12

5.2.1 Activities 5.13
5.2.2 Requirements and Resources 5.17

6. Services Needed, Estimated Quantities, and Costs 6.1
6.1 Introduction 6.1
6.1.1 Overview of Methodology 6.1
6.2 General Assumptions 6.3
6.2.1 Description of Services 6.4

6.3 Need for Adaptive Management 6.5

I. Appendix A A.1

PREFACE

In the course of planning for the 34th America's Cup, with events scheduled to take place in San Francisco in 2012 and 2013, a Waste Management Plan (WMP) was drafted under the direction of the San Francisco Department of the Environment (SF Environment), the local agency responsible for the City's well-known Zero Waste program, with input from the Port of San Francisco (Port), the America's Cup Event Authority (Event Authority), and representatives from the Golden Gate National Recreation Area (GGNRA) and San Francisco Maritime National Historical Park (SAFR). The WMP was drafted to satisfy requirements of the Host City and Venue Agreement and the environmental review process under the California Environmental Quality Act (CEQA). In the time since the initial issuance of the WMP in March 2011, the title of the plan has been changed to reflect SF Environment's core values and goals. As such, the WMP for America's Cup has from here forward been reassigned the name "Zero Waste Plan."

This plan is not yet final. This draft is being made available for public review and public comments invited at americascup@sfgov.org through December 31, 2011. In January a revised draft will then be prepared and posted in an effort to incorporate public comments and further dialogue among the parties as to responsibilities.

SECTION 1
Executive Summary

On December 31, 2010 the City and County of San Francisco (the "City") was selected as the host city for the 34th America's Cup and associated sailing regattas. The prospect of staging these races for the first time in close proximity to an urban waterfront provides a tremendous opportunity to continue the City of San Francisco's leadership role in resource conservation. The Host and Venue Agreement which is the basis of this undertaking makes the following statement:

> The Parties are committed to minimizing the environmental impact of hosting the America's Cup, with the goal of offering residents and visitors a truly sustainable event … The Authority, the City and the Committee intend that… the Event will be a carbon neutral and zero waste operation and will emphasize resource sustainability and environmental stewardship.

The recycling and waste reduction methods and services that have been developed in the City from the 1990's through the present day will be on display for all to see and to use. These methods and services, and the requirements to use them, are described in this Plan. The requirements, described in Section 3, include local ordinances concerned with:

- Providing recycling and composting service at all residences and businesses, Citywide;
- Requiring the use of compostable food service ware, and banning non-compostable food and beverage containers;
- Requiring recycling at special events and at construction and demolition projects; and
- Providing space in new construction and remodeling to facilitate these services.

This Zero Waste Plan sets forth plans accepted by the City and the Event Authority (collectively referred to as the "Project Sponsors" from here forward) consistent with best environmental practices with the intent of making the 34th America's Cup a zero waste event. Sections 4 and 5 outline the types of services and information that the Event will use in order to reduce wastes to a minimum and recycle as much as possible.

This Zero Waste Plan concludes with initial estimates of the quantities of materials that will require removal, processing and (if necessary) disposal. As details of the Event are developed, it is expected that these estimates will be refined. This adaptive-management approach is expected to continue through the Event; activities in 2012 will provide a variety of lessons to be applied in 2013.

SECTION 2
Introduction

2.1 Purpose and Scope of the Zero Waste Plan

The primary purpose of this Plan is to fulfill the obligation stated in Section 10.10 of the 34th America's Cup Host and Venue Agreement ("Agreement"):

> The City shall in consultation with the Authority prepare a Waste Management Plan for the Venue by no later than March 31, 2011, which shall be consistent with best environmental practices and approved by the Authority and the City's Department of the Environment (the "Waste Management Plan"). The City shall ensure that the Waste Management Plan is implemented and carried out until six months after the Match. The City shall provide the necessary equipment for carrying out the Waste Management Plan.

The "Venue" is defined in Recital H of the Agreement as the facilities on Port of San Francisco lands that are required by the Event Authority to stage the (America's Cup) Event in the City (of San Francisco), and these facilities will be leased or licensed to the Authority through the Port of San Francisco. The success of waste prevention at the Event will depend in large part on the behavior of participants and spectators. Spectators will be moving readily between Venue and non-Venue areas, or active and passive event sites, and SF Environment and the Port will coordinate messages, signage and receptacles in order to help spectators know how to recycle their discards correctly, without confusion. In addition, the Project Sponsors anticipate that similar strategies will be employed in other programmed Event areas (e.g. Marina Green, National Park Service sites) to further support the coordination of a holistic and successful waste prevention strategy.

Areas outside of San Francisco may not have the same range of recycling services available, and may need to adapt the practices described in this Zero Waste Plan accordingly.

The need to minimize waste is explicitly stated in the Agreement. Recital E of the Agreement states that the Event will "…take place under conditions … emphasizing resource sustainability and environmental stewardship in the staging of the Event"; and Recital J states the following (emphasis added):

> San Francisco leads the way on environmental policies and sustainability initiatives that grow the City's economy and protect the health of the City's communities. The Parties are committed to minimizing the environmental impact of hosting the America's Cup, with the goal of offering residents and visitors a **truly sustainable event** … The Authority, the City and the Committee

> intend that…the Event will be a carbon neutral and **zero waste operation** and will emphasize resource sustainability and environmental stewardship.

Moreover, Section 10.12 of the Agreement states, in part, that "…(b) the Authority's activities for the Event will be carbon neutral and **zero waste**; and (c) the Authority will **promote resource sustainability and environmental stewardship**." (Emphasis added.)

2.2 Definitions

The following terms have distinct meaning within this Zero Waste Plan:

AC34 and Pier 27 Cruise Terminal DEIR – The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Plaza Draft Environmental Impact Report published on July 11, 2011.

Active Event Sites- Programmed locations for AC34 Events including Venues and park venues**.**

Discards – Materials that are no longer needed or wanted by their intended user. In general, this includes packaging after the contents are removed, damaged or surplus items, and materials that have served their purpose and need not be retained. Examples range from everyday items (food and beverage containers, unconsumed food, cardboard boxes, brochures, etc.) to things unique to the Event (floating docks, demolished structures, damaged nautical equipment, etc.). The term "Discards" is preferable to "Wastes" in order to emphasize that these materials have value after they are used.

Diversion – With reference to discards, the recycling or reuse of materials that would otherwise be disposed of in landfills, or by other means that prevent the further use of the materials. Diversion includes the collection and processing of food scraps and food-soiled materials for composting.

Event – the 34th America's Cup, including certain of the America's Cup World Series Pre-regattas (in 2012), the America's Cup Challenger Series, the America's Cup Defender Series (if held), and the Match (all in 2013).[1]

Highest and Best Use Hierarchy- A hierarchy of materials management for Zero Waste that includes: 1. Source reduction of materials generated, 2. Reuse including refurbishing, upgrading, and reclaiming of discarded materials for other uses, and 3. Recycling as a last option when reduction and reuse are not possible.

Passive Event Sites- Non-programmed areas, located between programmed AC34 Venues that are expected to be travelled by spectators on foot, public transit or bicycle.

[1] Agreement, Recital D.

Spectator-related activity – At a Venue, any activity that is done to support the attendance at, and enjoyment of, the Event by members of the public while on land. This includes parking, seating, entertainment, the vending of food, beverages and merchandise, and the maintenance of the areas where these occur. Spectator-related activities may also be thought of as "land-side" activities.

Support activity – At a Venue, any activity that is performed to support the berthing, operation or maintenance of the racing boats or officially-flagged spectator boats, as well as media operations, racing teams, and the piers, buildings and facilities used at the Venue. This includes the installation of temporary buildings and equipment, temporary docks, and anything necessary for the Event apart from the facilities needed to accommodate spectators not arriving by boat. Support activities may also be thought of as "water-side" activities. They are the activities that would necessarily happen if the Event took place without any spectators on land.

Venue – the facilities on Port of San Francisco lands that are required by the Event Authority to stage the Event in the City (of San Francisco), to be leased or licensed to the Event Authority through the Port of San Francisco..

Zero Waste – the goal of diverting all discards from landfill disposal, as well as reducing the amount of overall discards generated.

2.3 Scope and Content of the Zero Waste Plan

As a city with a Zero Waste goal, governed by several local ordinances (see section 3 Policies, Ordinances, and Commitments), the City requires all of its constituents to contribute toward its Zero Waste goal, including visitors and the hosts of special events in the City. The Project Sponsors are committed to following applicable guidelines and regulations, as well as, the "Highest and Best Use Hierarchy" of materials management. As described in this plan, the Project Sponsors will reduce the amount of discarded materials generated, reuse materials whenever possible, and recycle, compost, or otherwise aim to divert from landfill any discards that are produced in the course of (including before, during and after) Event, according to local regulations and other applicable requirements.

2.3.1 Wastewater Not Included

The portions of the Agreement cited above refer to Zero Waste and the SF Department of the Environment, and the Agreement does not address the management of wastewater or sewage. To be consistent with the current usage of the term "zero waste" and with the purview of SF Environment and its Zero Waste Team, the focus of this Zero Waste Plan is on solid wastes as traditionally defined, including refuse, litter, recyclables, compostables and other discarded items, but not wastewater, septage or sewage. However, an addendum to the document addressing Temporary Toilets has been included in the revision of this document, as indicated below in Section 2.3.2. The Temporary Toilets addendum does not address general wastewater management, but rather the types, quantities, and maintenance of temporary toilet facilities that will be required for the Event. Also, bilge water and sewage pumping from boats is addressed in

the addendum on Planning for Hazardous Wastes from Boat and Marina Activities. Additional wastewater-related topics are addressed in CEQA environmental review of the Event.

2.3.2 Organization of Zero Waste Plan

This Zero Waste Plan is divided into six primary Sections:

1. Executive Summary
2. Introduction
3. Policies, Ordinances, and Commitments - a listing of the policies, ordinances and regulations that pertain to waste management at the Event.
4. Management of Discards from Support Activity – Discussion and guidance regarding the demolition and construction of Venues, including those that will be used by boat maintenance crews.
5. Management of Discards from Spectator-Related Activity
6. Services Needed, Estimated Quantities, and Costs

Two additional sections have been added as addendums to the Zero Waste Plan as follows:

1. Planning for Hazardous Wastes from Boat and Marina Activities
2. Planning for Temporary Toilet Facilities for the Event

SECTION 3
Policies, Ordinances, and Commitments

3.1 San Francisco Zero Waste Policy

In September 2002, the San Francisco Board of Supervisors, which is the City's legislative body, adopted Ordinance 679-02, which states in part:

> RESOLVED, That the Board of Supervisors adopts a goal for San Francisco of 75% landfill diversion by the year 2010, and authorizes the San Francisco Commission on the Environment to adopt a long term goal of zero waste, with the date set once when the 50% diversion goal is met, and will establish including a timeline to achieve a goal of zero waste once the 50% diversion goal is met.

In 2003, it was determined that the goal of 50% landfill diversion had been met in 2001. Accordingly, the San Francisco Commission on the Environment passed Resolution 002-03-COE, which states in part:

> RESOLVED, That the Commission on the Environment adopts a date for achieving zero waste to landfill by 2020 and directs the Department of the Environment to develop policies and programs to achieve zero waste, including increasing producer and consumer responsibility, in order that all discarded materials be diverted from landfill through recycling, composting or other means.

Moreover, the goal of 75% landfill diversion by 2010 was met in 2008 through the implementation of numerous programs and efforts, the most relevant of which are described in Section 2.2 below.

3.2 Local Ordinances and Requirements

The City, through the San Francisco Department of the Environment (SF Environment) and with the active involvement of its collection company (Recology SF), has been a leader in the reduction and diversion of discards for many years. A wide variety of programs and requirements are in place in the City, and the following subsections describe the local legislation and basic requirements for those programs most relevant to the Zero Waste Plan. Those directly involved with AC34 activities will obtain full details on these requirements from SF Environment staff. Resources and materials to assist with compliance are also available from SF Environment.

These local ordinances and requirements are not applicable in GGNRA or SAFR.

3.2.1 Construction and Demolition (C&D) Waste Management

In 2006, the City adopted Ordinance No. 27-06[2] mandating the recycling of construction and demolition (C&D) debris. This ordinance affects all construction projects such as new construction, remodels and partial demolitions, and requires the building permit holder or the property owner to make sure that all C&D materials removed from the project are properly recycled. This ordinance prohibits any C&D materials from being placed in trash or sent to a landfill.

C&D materials source-separated at the construction site for reuse or recycling must be taken to a facility that reuses or recycles those materials. The Ordinance requires that all mixed C&D debris must be transported off-site by a registered transporter and taken to a registered facility that can process mixed C&D debris and divert a minimum of 65% of the material from landfill.

Full demolition of an existing structure requires that a Demolition Debris Recovery Plan (DDRP) be submitted to and approved by the SF Environment before a Full Demolition Permit (Form 6) will be issued by the Department of Building Inspection. The DDRP must demonstrate how a minimum of 65% of the material from the demolition will be diverted from landfill.

3.2.2 Green Building Ordinance: Space Requirements

The lack of space for separate collection of recyclables has long been recognized as a problem that inhibits waste reduction. This is especially true in cities such as San Francisco that have numerous older structures. Accordingly, in 2008 the City enacted Green Building Standards[3] that include the following requirement:

1304C.0.4 Solid waste. Areas provided for recycling, composting and trash storage, collection and loading, including any chute systems, must be designed for equal convenience for all users to separate those three material streams, and must provide space to accommodate a sufficient quantity and type of containers to be compatible with current methods of collection.

3.2.3 Mandatory Recycling and Composting

To help the City move closer to its goal of zero waste by 2020, the Mandatory Recycling and Composting Ordinance requires everyone in the City to separate their refuse into recyclables, compostables, and trash.[4] No one may mix recyclables, compostables, or trash, or deposit refuse of one type in a collection container designated for another type. All property owners are required to maintain and pay for adequate refuse service.

[2] http://www.sfenvironment.org/downloads/library/ondemolitionordinancefinal.pdf
[3] http://www.sfenvironment.org/downloads/library/sf_green_building_ordinance_2008.pdf
[4] http://www.sfenvironment.org/downloads/library/sf_mandatory_recycling_composting_ordinance.pdf

Owners or managers of apartments, condos, T.I.C.s, food establishments, and events are required to maintain appropriate, color-coded (blue for recyclables, green for compostables, and black for trash), labeled containers in convenient locations, and to educate tenants, employees, and contractors, including janitors, on what materials go in each container. Vendors that provide disposable food service ware or to-go containers must have appropriate containers for use by customers and visitors, placed inside near a main exit.

3.2.4 Food Service Ware

The Food Service Waste Reduction ordinance, effective June 1, 2007, prohibits any establishment that serves food prepared in the City from using polystyrene foam (Styrofoam) to-go containers. The Ordinance further requires that any containers used be either recyclable or compostable in the City's programs. The Ordinance also clearly defines compostable food service ware according to ASTM standards, and requires that it be clearly marked.[5] Compostable food service ware will also be BPI certified.[6]

3.2.5 Special Event Recycling

San Francisco Special Events Ordinance No. 73-89 requires any applicant seeking permission for the temporary use or occupancy of a public street, a street fair or an athletic event within the city and county that includes the dispensing of beverages or which generates large amounts of other materials to submit a recycling plan. Recycling plans shall include arrangements for collection and disposition of source separated recyclables and/or compostables by a service provider or the event organizer.

Although the requirements of the Mandatory Recycling Ordinance (see above) are generally more stringent than the Special Events Ordinance, the Special Events Ordinance also requires a monetary deposit from the Event Sponsor that may be forfeited if recycling cannot be documented after the event.

SF Environment maintains a helpful checklist for special event recycling on its web site.[7] It includes illustrations of recycling setups for use by spectators, such as Figure 2-1 below. These setups, and the procedures for using them (also summarized in the checklist), have been refined continuously since the passage of the Special Events Ordinance in an effort to make them as effective as possible. The checklist also includes a brief directory of resources and services that can assist with recycling at special events. The descriptions in later sections of this Zero Waste Plan are largely based on these available services.

[5] http://www.sfbos.org/ftp/uploadedfiles/bdsupvrs/ordinances06/o0295-06.pdf
[6] http://www.bpiworld.org/Certified-Bioedgradable-Foodservice-Items-Plates-Cups-Utinsels [sic]
[7] http://www.sfenvironment.org/downloads/library/zero_waste_event_checklistupdated_122009.pdf

Figure 2-1 – Special Event Recycling Setup in Golden Gate Park

SF Environment will provide training workshops for Port and Department of Public Works staff, Event managers and staff as appropriate prior to, and during, the Event.

3.2.6 Waterfront Special Event Composting and Waste Reduction Policy

Based on recommendations from SF Environment and public comment during the planning period for the Event, the Port of San Francisco is contemplating a new policy governing all waterfront events with expected visitorship of more than 15,000. The purpose of the policy is to 1) ensure that food waste streams from large outdoor events can be easily composted, and 2) marine life in the Bay is protected from plastics and other litter.

While still under development, the proposed Waterfront Special Event Composting and Waste Reduction Policy would require event organizers that request a lease, license or permit from the Port to stage a waterfront event with expected attendance of 15,000 people or more to take the following steps:

- Refrain from selling, and require subcontractors to refrain from selling, single-use plastic water bottles and provide for water-refilling stations with reusable bottles;
- Refrain from using, and require subcontractors to refrain from using, single-use disposable plastic bags associated with the sale of food or merchandise;
- Use, and require subcontractors to use, either compostable food service ware approved by the San Francisco Department of the Environment or reusable food service ware.
- Encourage vendors to minimize packaging, and avoid the use of single use disposable plastic packaging.

3.3 Meeting the Zero Waste Goal

The policies, ordinances and requirements described above, and the willing compliance of residents, businesses and service providers, have brought San Francisco closer to zero waste than any other major American city. However, simply complying with the "rule book" will not result

in the desired Zero Waste event. It is incumbent on the Project Sponsors, as well as the organizers and managers of concurrent or related events, to think beyond the rules in a variety of ways.

A zero waste Event will go beyond just recycling, also promoting the prevention of waste by carefully choosing the materials that are used in all aspects of the Event. For example:

- Discouraging the use of plastic packaging, souvenirs and giveaways.
- Encouraging durable reusable water bottles (not single use) and refilling stations.
- Providing durable temporary docks that can be salvaged and reused after the Event.
- Salvaging materials when possible, rather than simply demolishing structures slated for removal as part of the Event.
- Training all staff in the proper placement of discards for recycling, composting or (if necessary) disposal.

In addition, it will be important to coordinate the content of the guidelines provided to spectator boats, merchants in the America's Cup Village, and racing boat maintenance crews, so that messages and methods are consistent.

SECTION 4

Management of Discards from Support Activities

4.1 Introduction

For reference, the following definitions are repeated from Section 1 with emphasis added:

Support Activity – At a Venue , any activity that is performed to support the berthing, operation or maintenance of the racing boats or officially-flagged spectator boats, as well as media operations, racing teams, and the piers, buildings and facilities used at the Venue. This includes the installation of buildings and equipment, temporary docks, and **anything necessary for the Event apart from the facilities needed to accommodate spectators not arriving by boat. Support activities may also be thought of as "water-side" activities. They are the activities that would necessarily happen if the Event took place without any spectators on land.**

Discards – Materials that are no longer needed or wanted by their intended user. In general, this includes packaging after the contents are removed, damaged or surplus items, and materials that have served their purpose and need not be retained. Examples range from everyday items (food and beverage containers, unconsumed food, cardboard boxes, brochures, etc.) to things unique to the Event (floating docks, demolished structures, damaged nautical equipment, etc.). The term "Discards" is preferable to "Wastes" in order to emphasize that these materials have value after they are used.

The **geographic scope** of this section of the Zero Waste Plan is limited to the City and County of San Francisco, and in particular, the Venue. Virtually all support activities will take place within Venue facilities, so they are the focus of this Section. Those activities include:

- Storage, display, maintenance and repair of race boats participating in the Event
- Crew support (dining, dormitory, or similar facilities)
- Demolition and construction to prepare Venue facilities for the Event
- Temporary pier installation, overwintering, and ultimate removal

Existing marinas and water-related facilities in San Francisco that are not part of the Venue or other programmed areas are also likely to experience increased activity during the Event. SF Environment will perform outreach to these facilities to encourage them to apply the practices described in this Zero Waste Plan, where appropriate, to provide a consistent experience for participants and to gain experience with a zero-waste approach to their business practices.

For the reasons stated below, this section of the Zero Waste Plan does not address the following aspects of support activity:

- Dredge spoil disposal - Fully controlled by regulations and permit processes.
- Maintenance of boats and property on Port lands outside of Venue areas - Controlled by existing requirements and past practices of the Port and its tenants.[8]
- Pump-out of boats' sanitary wastes - Controlled by existing regulatory requirements.
- Hazardous material and hazardous waste management – with the exception of hazardous wastes from boat related activities, which are addressed in Addendum 1 to this Plan.

4.2 Activities, Requirements, and Resources

4.2.1 Demolition and Construction Work on Piers

For a sustainable, zero waste operation, the recommended approach to demolition work is to maximize deconstruction, by first remediating hazardous materials (if any) and then salvaging as much material as possible with a minimum of damage. During the removal of damaged structures and the installation of new material, when recyclable by-products are generated, they will be kept separate from other discards in order to maximize both their salvage value and their recyclability. While the highest and best use of construction and demolition discards is reuse via deconstruction and salvage, time, budget and operational constraints may limit the feasibility of implementing some of these most sustainable practices.

Highest and best use for construction and demolition (C&D) materials includes:

- Removing reusable electrical and plumbing fixtures, metal roll-up doors, stairways, and mezzanines; large timber beams; structural steel; and decorative fittings and making them available for reuse.[9]
- Keeping reusable and recyclable by-products separate throughout the demolition process in order to maximize both their salvage value and their recyclability.
- Providing clean concrete to processors that will crush it to recycle reinforcing steel and produce rock products.

Demolition and construction work is expected to take place on the following piers (listed from south to north) within the Venue:

- Pier 80
- Piers 30 and 32

---

8 An addendum, "Planning for Hazardous Wastes from Boat and Marina Activities" this Zero Waste Plan addresses the increase in hazardous materials from boats only.

9 There are clearinghouses for salvaged materials and equipment locally in the Bay Area and elsewhere in California. Three in the immediate area are Building Resources in San Francisco, Urban Ore in Berkeley, and Whole House Building Supply in San Mateo. Local demolition contractors should be aware of other options as well. Mention of specific businesses does not imply endorsement.

- Piers 26 and 28
- Pier 64
- Pier 19
- Pier 23
- Piers 27-29

Types of materials generated from partial or total demolition and new construction work at these piers include:

- Concrete
- Asphalt
- Treated and untreated dimensional lumber including siding, framing wood and plywood
- Cardboard
- Metal including structural steel, rollup and other doors, duct work, conduit, and fencing
- Composite roofing material
- Mixed debris including plastic paneling, window glass and insulation

The Project Sponsors will comply with the City's Construction and Demolition Debris Recovery Ordinance by estimating the quantities of materials generated during demolition and construction and identifying methods and/or processors that will maximize reuse and recycling. SF Environment staff will assist with this process.

Piers 27-29 will be the site of the 2013 AC Village and the existing structures will be partially removed and rebuilt. The Port has identified this site as the most likely candidate for deconstruction and reuse of materials; under the Agreement, the Event Authority is charged with removing all of Pier 27. Accordingly, the Event Authority will submit a Demolition Debris Recovery Plan (DDRP) for review and approval by SF Environment before the Port issues its demolition permit. The DDRP will demonstrate how a minimum of 65% of the material from the demolition will be diverted from landfill. Temporary docks have also been identified as candidates for reuse in other locations following the event.

In addition to modifications to structures on piers, in some cases the piers themselves will require repair, strengthening or replacement. Pier components include concrete caissons and creosote-treated wood pilings. A caisson is a watertight retaining structure typically constructed of reinforced concrete or steel used, for example, to create dry conditions while working on the foundations of a pier. When piers are to be built using an open caisson and it is not practical to reach suitable soil, friction pilings may be driven to form a suitable sub-foundation. These piles are connected by a foundation pad upon which the column pier is erected.

As part of pier renovations, caissons may need to be removed and replaced in preparation for new construction. Based on the type of caisson, its location, and the amount of difficulty and expense in removing it from the bay mud versus building around it, the scrap material can potentially be recovered for reuse as riprap, or for recycling under the C&D Ordinance.[10]

[10] Telephone interview with Kim Von Blohn of Port of San Francisco 7/7/2011

Removal of creosote treated wood pilings will be a source of Treated Wood Waste (TWW). TWW comes from ground or water contact applications where the wood has been removed from service. Such wood is typically treated with preserving chemicals that protect the wood from insect attack and fungal decay during its use. As such, TWW typically contains hazardous chemicals that pose a risk to human health and the environment and that cannot be recycled, chipped for other uses, composted, or deposited in a landfill environment. As the Project Sponsors encounter creosote treated wood it will handle this material according to regulations and keep it out of standard recycle, compost, or landfill containers.

4.2.2 Reuse of Temporary Piers

Plans for the Event call for approximately 2,000 linear feet of temporary floating piers to be installed in 2012, and approximately 10,000 linear feet of these piers to be installed in 2013. They will be held in place by pilings, and at the conclusion of the Event the piers and the pilings will be removed. Also, because of the likelihood of damage from winter storms, most or all of the 2012 temporary piers will likely be removed by the Event Authority from the water and stored until the 2013 Event season.

These piers are typically prefabricated elsewhere, in sections, and delivered to the customer via truck or rail. It is likely that one or more of the Port's permanent piers will serve as receiving and assembly points for these sections. At each such location, the protective cushioning and packaging for the temporary pier sections will create a substantial volume of discards, including stretch-wrap, cardboard, wooden crating, metal strapping, etc. The Event Authority will strive to reduce these discards by requesting that the temporary piers are shipped with reusable or recyclable packaging and avoiding Styrofoam® and plastic single-use strapping. Event Authority contractors will plan ahead for recycling the packing materials.

Typically, temporary piers are constructed with concrete decks for a top surface, plastic foam blocks anchored below for flotation, and a metal or timber frame to add structural rigidity and protection while in the water. The sections of pier are linked together using metal bolts, which often are left in place for the life of the pier. Steel modular flexible floats may also be used for temporary floating structures, which are all reusable. For temporary piers that the Event Authority plans to remove between 2012 and 2013, the Event Authority will specify corrosion-resistant bolts or other fasteners that will enable the 2012 piers to be disassembled and reused in 2013. The Event Authority expects that at the end of the 2013 racing season, leased temporary piers will be reused. The Event Authority will investigate the feasibility of specifying recycled-content concrete for the pier top decks, where appropriate.

The pilings that will hold the temporary piers in place will be specified with care. Wood or steel piles will be installed to moor the temporary docks, using a vibratory (rather than impact) pile driver. Wood and steel piles are reusable and recyclable. Pile specifications will be reviewed with the Port to determine local reuse options. The Port routinely uses wooden piles for pier and apron repair projects through its Maintenance Division.

A prerequisite for the reuse and salvage of the temporary piers and pilings is a substantial amount of storage space, between seasons. At the end of the Event, the Event Authority will find a suitable end user for the piers and pilings.

4.2.3 Design and Construction of Buildings and Structures

Zero waste begins at the design phase. For the construction of facilities that will be used by Event staff, racing teams, media and sponsors, the Project Sponsors will each include space for recycling in the design. This means providing spaces for containers that will hold materials to be recycled (compostables and cans/bottles/paper), and locating those spaces for convenient use. It also means providing mounting surfaces at those container locations, where instructional signs can be posted. More generally, it means specifying durable, reusable and repairable materials and components, so that when damage occurs, discards are minimized. Finally, it means preventing litter (which, on piers, can easily be blown into San Francisco Bay) by providing receptacles for discards where they are most likely to be needed.

When the Project Sponsors specify materials, they will seek products and packaging which contain recycled content and which are easily recyclable. This Zero Waste Plan does not attempt to describe all of the many options available. The Project Sponsors will contract with LEED-certified (Leadership in Energy and Environmental Design) professionals in their design work, the designs and specifications should maximize this opportunity.

Design features will include amenities that are consistent with other zero waste aspects of the Event.

- The Project Sponsors will coordinate with the San Francisco Public Utilities Commission to provide tap water "filling stations" for reusable water bottles at locations along The Embarcadero. Sales of single use plastic bottled water by outdoor vendors along The Embarcadero will be discouraged by the Port's Venue Leases and licenses.
- The Event Authority may use Port piers for weather-protected storage space for items that will be used in the 2012 and 2013 Event seasons.
- The Event Authority will consider establishing dishwashing facilities at semi-permanent food service locations such as the Media Center, AC Village, Team Bases, and Hospitality Areas. Also, adequate refrigeration facilities to prevent spoilage.

This part of the design process begins by thinking about what gets "thrown away" and identifying preventive measures.

At the completion of the Event, the removal of temporary structures will provide a final opportunity to prevent waste. The Project Sponsors will design these structures for reuse, and, where feasible, rent these structures from suppliers that can deploy them elsewhere in the future.

4.2.4 Moored Spectator Vessels

Moored vessels brought to San Francisco Bay by Event spectators may generate discards from two general types of activity: (1) operation and maintenance of these boats, and (2) activities of

the residents, while on the boat and while ashore. The Port's Venue Leases will require that spectator vessels berthed in Port jurisdiction obey all regulations and participate in source separation of discarded materials. SF Environment, the Port and the Event Authority, while not responsible for the activities of spectator vessels that berth outside of San Francisco, will coordinate to disseminate information and support local waste diversion programs and applicable laws.

Boats and their associated mechanical equipment require periodic maintenance that can produce discards which require special handling, such as electronic devices, as well as hazardous materials including batteries, used oil, paints, caulk, adhesives, solvents, etc. Other, non-hazardous nautical items such as chains, ropes, brackets, cleats, etc. are sometimes discarded. Occasionally, live-aboard boats can also be the source of discarded household items such as damaged furniture, cushions, textiles, kitchen utensils, and the like.

At the Event, the activities of residents on moored spectator vessels are likely to resemble those at tourist hotels and apartments in San Francisco. This includes everyday activities such as food preparation, but also shopping, dining out, and the consumption of food and beverages typical of parties and in-home entertainment.

To minimize landfilled waste from the moored spectator vessels at Port facilities, the Port, SF Environment and the Event Authority will communicate the proper ways to use the City's local discards collection system. It is anticipated that oceangoing yachts from many European and Pacific Rim nations, as well as from North America, will be in attendance. Communicating clear and consistent messages to owners, occupants and the boats staff members, across many language and cultures, is both necessary and challenging. The Port, SF Environment and the Event Authority will start this communication effort in early 2012, as appropriate.

When the owner or operator of a vessel first contacts the Project Sponsors to inquire about berthing space for any part of the Event in 2012 or 2013, they will receive a Zero Waste Event Advisory as part of the proposed **Mitigation Measure M-BI-12: Visiting Mariners Information** pursuant to the AC34 and Pier 27 Cruise Terminal DEIR that includes the following information:

- A description of San Francisco's proactive stance on environmental matters, including the City's zero waste goal and current progress
- The commitments by the Agreement parties to deliver sustainable, zero waste Events
- The importance of keeping plastic and trash out of the Bay
- The discards-management methods that will be available to moored spectator vessels for recycling, composting, trash, and hazardous-material discards
- The concept of "precycling" to reduce discards before materials are brought on board
- The need to separately manage and sterilize discards brought from other countries, and the reasons this is necessary (pathogen and crop pest control, etc.)

SF Environment will provide assistance to the Project Sponsors in preparing this information. That assistance will include providing design, translation, and/or images for the Zero Waste Event Advisory.

The Event Authority's reservation form for the berthing of a spectator boat in a Venue will require an owner's or captain's signature agreeing to understand and correctly use the discard-management systems provided at the Event and to follow related provisions of the Port's Venue Lease.

Discards Collection Services – The Project Sponsors will coordinate with the Event waste service provider(s) to ensure that collection containers (carts, bins and where appropriate, rolloff boxes) will be placed for use by the occupants and staff of moored spectator vessels at the temporary floating docks. For equal convenience and to reduce cross-contamination, all three primary discard types – recycling, compost, and trash – will be served at each service point. Signs on these containers, and the colors of the containers, will remind users about which types of materials should be placed in each container. Advisory signs regarding hazardous materials and international-waste collection locations will also be posted at these service points. Examples of signs describing current services are included in Appendix A. In planning the location of containers for collecting discarded materials and coordinating with waste service provider(s), the Project Sponsors will include accessibility by collection trucks.

Adaptive Management – The America's Cup World Series races in San Francisco in 2012 will provide a good opportunity to learn and prepare for 2013. By monitoring quantities of discards and comparing to berth occupancy at the temporary piers, Project Sponsors will be able to anticipate the services that will be needed in 2013 and plan accordingly.

4.2.5 International Waste

International waste is safeguarded under direct authority of the U.S. Department of Homeland Security (DHS) under the Homeland Security Act (HSA) of 2002, by U.S. Customs and Border Protection, and by the Agricultural Inspection Program.

Waste transported on marine vessels entering the United States is considered "regulated waste" or "international waste" as a result of movements outside the Unites States and Canada. International Waste refers to food and plant materials, and any other materials that have come into contact with food or plants. It is important to that such wastes are properly handled to prevent unwanted organisms from entering the plant, animal, and food supply chain of the United States.

Recology currently provides collection service and processes regulated waste under the authority of Compliance Agreements with the DHS. The Compliance Agreements govern the types of containers, handling, and transportation of regulated international waste, and require that Homeland Security be notified when a container is placed for its collection. Recology is required to adhere to a 72-hour time limit for providing the "regulated service." The container must be removed within 48 hours of its placement, and processed and sterilized (cooked) within 24 hours of its removal. The 72 hour clock starts at the placement of the collection container.

Although it is possible that visiting vessels might discharge their regulated waste at other domestic ports prior to coming to San Francisco, the Port, in coordination with the Event Authority, America's Cup Race Management, Recology and DHS, will be prepared to handle larger than normal volumes during AC34. Numbers of increased boats in the San Francisco Bay

have been estimated in the June 14, 2011 report, *Analysis of Potential Visitation Patterns for America's Cup 34*. As the Event Authority reserves berthing locations along the Port's waterfront for large spectator vessels, the Event Authority will provide further detail to the Port regarding the expected number of passengers per vessel, and the planned itineraries of the arriving vessels, and to the extent possible, planned stops in other U.S. ports immediately prior to arriving in San Francisco, so the Port and Recology can estimate quantities of international wastes and establish a plan for collection containers and schedules that allow for servicing within 48 hours as required by DHS.

Compliance with international waste requirements will be a requirement of the Port's Venue Leases.

4.2.6 Maintenance of AC Watercraft; Crew Services

In each year of the Event, a specific part of the Venue will be designated for Team Bases, to be used for the docking and maintenance of race boats, and related activities. In 2012 this will either be Piers 30-32 or Pier 80; in 2013, the primary Team Bases will be at Piers 30-32, with Ancillary Team Bases available at Pier 80 if needed. The main function of the Bases will be to provide space for boat work, storage and maintenance facilities, as well as office space and ancillary team parking. They will also provide controlled visitor access so that the public may observe activities at these locations, without interfering.

Catering of meals for crew members and staff will also occur at these locations, and deliveries of materials and equipment are likely to be ongoing during preparation for races as well as on race days.

Discards collection services will be similar to those described above for moored spectator boats. Clusters of containers (bins and/or carts) will be placed at several convenient locations near team work areas. These containers will serve as receptacles for non-hazardous discards, including compostables, recyclable materials (paper, hard plastics, bottles and cans) and trash. Containers will be marked to indicate the correct types of materials to be placed in each container. An adequate number of containers for compostables, recyclables, and trash, appropriately sized, will be provided wherever food service and eating regularly occurs. Office spaces will also be equipped with appropriate containers and signage for all three streams.

Hazardous materials and their containers are likely to be part of the discards from boat maintenance. Addendum 1 to this Plan discusses handling of these materials in detail.

Additional waste prevention measures will also be adopted. For example, team bases will include a scrap metal bin to ensure the recycling of damaged metal items, if these items will be used at team bases. Food caterers will be asked whether they are familiar with, and are willing to arrange, donation of unconsumed food to food banks and shelters.

SF Environment and the Event waste service provider(s) will identify the best option for the collection of film plastics, which are likely to be a significant part of the packaging of equipment and materials delivered to the Team Bases. A container for film plastics will be situated in a location accessible by each Team.

When maintenance crews, office staff and sailing teams first arrive, SF Environment will arrange brief in-person trainings to show Teams how to properly dispose of their discards, to maximize recycling. Trainers will be fluent in the languages used by various teams, or will be assisted by an interpreter.

The Port will coordinate with SF Environment and the waste service provider(s) to ensure that visitor viewing areas will be equipped with a set of three receptacles at entry and midpoints to receive discards such as beverage containers, snack wrappers, brochures, etc. These receptacles will resemble the container clusters used at spectator venues, to provide a consistently recognizable means for the public to recycle as much as possible. Signage stressing the importance of preventing litter at the event will be placed with these containers if possible. Signage will also educate visitors about the ways that the Event (and they too, if they are boat owners) can reduce wastes, especially in the marine environment.

4.2.7 Race Operations and Media Headquarters

In each year of the Event, race operations and media headquarters will be designated. In 2012, the America's Cup World Series race operations will likely be managed from the America's Cup Village in the Marina Green area, with equipment storage occurring there and at Pier 80. In 2013, operations will require considerably more space for the Louis Vuitton Cup, America's Cup Challenger Series and the Match. Piers 26 and 28, Pier 19, and portions of Pier 80 are likely to be used for this purpose.

Container services, appropriately sized, will be provided at all of these locations. The principles outlined above in Section 3.2.5 will be followed for these race operations locations.

Media Headquarters will provide a major opportunity to disseminate clear, consistent message about the sustainable, zero waste aspects of the Event and what individuals can do to support that. The Event Authority's point-person on sustainability matters will coordinate with the Media HQ and will be proactive in reminding media representatives about ways that attendees, participants and sponsors are creating a carbon neutral, zero waste event.

In 2012, the media center is proposed to be located at Marina Green, and in 2013 at Pier 23. Both locations will be provided with the appropriate suite of services described in preceding Sections, appropriately sized, as required through City Ordinances. Consideration will be given to providing options for the repair of electronic equipment, as well as the recycling of spent batteries, electronic media such as CD's and USB drives, and other items frequently disposed of by media staff, including press kits and binders.

SECTION 5

Management of Discards from Spectator-Related Activities

5.1 Introduction

This section covers requirements and guidelines for the reduction, diversion, and management of discards from spectator activities at Venues. Discards from spectator areas are expected to be a subset of typical municipal solid waste, containing glass and plastic bottles, plastic packaging, mixed paper, food scraps, and non-recyclable (but compostable) paper products, and compostable plastics. Event staff and Event vendors will be expected to direct these discards into three separate waste streams, mimicking the City's well-established programs for recyclable, compostable, and landfill bound materials. With systems to collect and process these materials, outreach messages and campaigns, and a law governing the recycling of these items, San Francisco provides an ideal venue for maximizing the sustainability of the Event.

5.1.1 Types of Venues and Types of Discards

Event spectator Venues will have several types of usage, including race viewing, sponsor displays, food and beverage retail, merchandise retail, broadcasting and live entertainment. The flow of events, locations of activities and number of spectators will change from 2012 to 2013. There are expected to be significantly more attendees in 2013 for the Louis Vuitton Cup and the Match. The structure and timeline of the overall Event will enable Project Sponsors to use experience from 2012 to improve upon waste reduction and discards management in 2013.

The resource recovery infrastructure in San Francisco, supported by Recology, is so extensive that only 5-10% of typical municipal solid waste (MSW) material is expected to be sent to landfill: primarily plastic film[11], composite materials (such as aseptic packaging) and polystyrene foam. The remaining 90-95% of materials can be either recycled or composted using the City's programs. The City's Mandatory Recycling and Composting Ordinance further requires all businesses and residents in the City to separate their discards into recyclable, compostable and landfill-bound material streams. Residents of the City and regular visitors (including those who arrive for work or business each weekday) generally have a good grasp on how to participate in these programs. However, international, short term, and first time visitors to the City may be

[11] Plastic film from spectator activities would be considered landfill bound and consist of items such as chip, candy and other wrappers. However, plastic film from event planning, construction, and back of the house activities can be managed and recovered for recycling.

experiencing this range of services for the first time. One consequence for the Event is that monitoring of disposal stations by Event staff or contractors will be critical for conveying optimum behavior to spectators. The *Special Event Contractors* page on SF Environment's website, provides a list of local special event waste reduction and recycling contractors who have received training from SF Environment.[12] SF Environment will also provide the same level of training for any other contractors by request .

While the materials that will be used and discarded as a result of spectator activities for AC34 will be representative of materials found in the typical MSW stream, the actual composition of these materials is expected to be representative of special events and spectator activities such as those at AT&T Park in San Francisco and Fleet Week. At AT&T Park, based on materials purchased and used, the discards from food service and merchandising retail are 70% compostable, 25% recyclable, 5% landfill. However, AT&T Park is a closed venue (controlled entry and exit gates), and material inputs and separation of discards can be controlled. The Event activities in 2012 and 2013 would likely be more similar to the composition of discards at Fleet Week. Since most spectator discard materials are recoverable, the goal will be to recover them all by placing them in the appropriate material stream.

The Project Sponsors will take steps to divert these materials from landfill and to reduce waste at the source by providing purchasing guidelines to sponsors and vendors, and endorsing City requirements, such as the Mandatory Recycling and Composting Ordinance and the Food Service Waste Reduction Ordinance.

5.1.2 Key Messages and Messaging Opportunities

AC34 is not only a major spectator and sporting event but also a large multi-year public event that will offer an unprecedented opportunity to demonstrate both sustainability and environmental responsibility. As such, the Project Sponsors, in consultation with SF Environment, will provide landfill diversion options for event attendees, while adhering to local environmental policy and promoting sustainability messages as identified in this section. With hundreds of thousands of local and international visitors to AC34, the event provides a unique opportunity for marketing and messaging waste reduction and diversion, as well as consumer and producer responsibility, and marine and land stewardship.

AC34 presents a tremendous opportunity in terms of scale, audience, and timing to use social marketing and other media to launch an environmental awareness campaign about Zero Waste. Zero Waste goes beyond just landfill diversion and calls for accountability for the waste we generate as individuals as well as for corporate responsibility in production, distribution, and disposal. Zero Waste also addresses reducing the overall generation of discards and is a critical element of a larger picture of environmental sustainability. Public Service Announcements (PSAs), print media including AC34 publications, press releases, broadcasts, educational exhibits, and Facebook, Twitter, and other online media are all avenues for a campaign or co-campaign with SF Environment and local conservancy organizations to produce positive environmental

messages for the public. SF Environment staff will partner with the Project Sponsors to create and disseminate environmental messaging for the Event.

5.1.3 Key Message: Source Reduction

In the hierarchy of Reduce, Reuse, and Recycle, source reduction is the most important and environmentally effective approach to minimizing waste. While recycling and composting are important, it is far better to not produce that waste in the first place. In the special event and spectator environment, it is challenging yet quite possible to reduce waste at the source.

Zero Waste Food Court

The use of durable dishes and cutlery for food service is one of the strongest environmental messages that Event vendors and the Project Sponsors can transmit to attendees, leading by example and creating a model for food service that can be replicated for future America's Cup events. The resources that are consumed to manufacture and distribute single-use food service ware have been estimated to be 70 times more than the product itself. Durable service ware will conserve resources and convey a message that Event is a cutting edge, sustainable event.

Durable service ware can be combined with water filling stations to further reduce the need for single use packaging. The Event Authority will strongly encourage vendors to propose source reduction actions, such as: bulk dispensing of condiments, dispensing beverages fountain style rather than in bottles, and to use reusable dishes instead of single-use disposables.

Merchandise Vendors

Sourcing functional, durable goods instead of disposable products will complement other priority messages for the Event, such as promoting marine stewardship and the responsible use of plastics. Retailers that propose to sell goods will be encouraged to use only necessary packaging. Electronic invoicing and purchasing is another way that vendors can eliminate waste, by shifting away from the consumption of paper for these processes. Vendors will be allowed to distribute BPI certified compostable bags, paper bags made with a minimum 40% post-consumer recycled content, or reusable bags, per relevant City ordinances and regulations.

Training for retail vendors will include these and other options for merchandisers that will help them work with suppliers to reduce the amount of product and shipping packaging. The Project Sponsors will coordinate with SF Environment to organize training for vendors.

5.1.4 Key Message: Landfill Diversion

Disposal Stations

The landfill diversion programs in San Francisco convey an important underlying message: "Not much goes to landfill in San Francisco." There are many ways to communicate this message, but the most direct is in the placement of receptacles for collecting discards. The Mandatory Recycling and Composting Ordinance provides strict guidelines for setting up public space disposal containers. No trash can is to be left in isolation. Instead, all containers for landfill-bound waste must be paired with compost and recycling collection containers. Similarly,

receptacles for collecting recyclable and compostable material must be clustered so that access to disposal of all three material streams is provided. These clusters will be referred to as "disposal stations" or "stations". Each disposal station must provide color coded containers, or indicators, as well as signage. According to the Special Event Ordinance, the disposal stations must be easy to locate with indicators of their location visible above the height of the crowd.

Figure 4-2 – Disposal station at special event in San Francisco

Figure 4-2 depicts a disposal station at a special event that complies with both the Special Event Ordinance by having an overhead identifier, and with the Mandatory Recycling and Composting Ordinance, by providing a cluster of color-coded, signed receptacles for each material stream. Further, the man pictured here is a worker hired for the event that helps keep the area clean and directs the public on how to properly use the receptacles.

Materially Proportionate Stations

It is estimated that by weight, a majority of spectator waste will be compostable material, with the second highest percentage of waste by weight being recyclable material. Disposal stations will reflect the proportions of the waste stream for each material stream represented, as shown in Figure 4-3 below. This will further support the message that, "in San Francisco not much goes to landfill", because there are adequate services for waste diversion. To further reduce waste, a space in the back-of-house area will be designated for sorting or removing contaminants before collection by the hauler. This practice supports entry level green jobs and the highest resource recovery rates.

Figure 4-3- Materially proportionate disposal station and customized signs

Figure 4-3 illustrates a materially proportionate discard station, where compostables represent the largest quantity of material generated, and as a result more space is designated for their collection. This image also depicts an example of a customized sign that uses 3-D objects to depict actual products used at the venue. Section 4.1.3, below, provides further detail.

Distributed Retail Vendors

In addition to vendors at event sites, the City proposes to allow licensing, which may occur in conjunction with the Event Authority, for food cart vendors to provide food, beverage, information and ancillary merchandising services to race spectators and visitors to the waterfront. The Port will impose restrictions on the types of packaging that may be sold by distributed retail vendors along The Embarcadero (outside of Venue Leases), as part of any license to use these areas.

Licensed vendors will be required to obtain training from SF Environment regarding source reduction strategies, and all food service ware will be compostable as a condition of the Port's license. Furthermore, vendors will provide and monitor disposal stations to facilitate the source separation and collection of compostable, recyclable, and landfill bound discards, especially when related to food service where materials are expected to be almost entirely divertible from landfill.

5.1.5 Key Message: Marine and Coastal Stewardship Regarding the Responsible Use of Plastics

Awareness about plastic pollution in the world's streams, rivers, and oceans has become a topic of mainstream media and is an issue that will be carefully considered and addressed by the Project Sponsors. Five current contained gyres, or bodies of water, containing massive accumulations of UV degraded plastics have been discovered around the globe. Plastics are also the subject of coastal clean-up and conservancy efforts as they wash ashore. Plastics, both from

litter, storm water and maritime sources enter the marine environment where salt and sun break them into ever smaller, eventually microscopic bits, creating suffocating film that is rapidly altering the ecology of our oceans. The Project Sponsors will reduce the impact of single-use plastics in the marine environment through source reduction and recycling.

As a maritime event, AC34 provides the perfect venue for raising awareness about the consumption and fate of plastics and the associated environmental impacts. The Project Sponsors will enlist the support of local and international marine stewardship organizations to help educate the public about this issue. Space may be dedicated to organizations that will help transmit these messages through environmental outreach and education.

Disposal stations will also be an opportunity to convey the message that plastics can and need to be consumed minimally and responsibly.

5.1.6 Signage Standards

The City's Mandatory Recycling and Composting Ordinance requires all public disposal stations to have color coded, instructional signage for each of the principal discard streams, i.e. recycling, composting, and landfill. SF Environment has several versions of these signs available to the public as shown in Appendix A- *Signage*. The Project Sponsors may make custom signs as well, either based on City-provided templates or using an original design. Vendors that provide their own disposal containers will also be required to provide disposal stations (see above) as well as appropriate signage. If it produces custom signs, the Project Sponsors will consult with SF Environment to assure consistency with other signage citywide and for other sign related support. The following are guidelines for signs:

Color
Signs must be color coded to correspond with the City's programs as follows:

- Blue-Recyclables
- Green- Compostables
- Black- Landfill

Location
Signs must be fitted above or on bins so that they are clearly visible and will be placed in the line of sight of the user.

Standard Signs
SF Environment has standard signs that the Project Sponsors and vendors may use for the Event which meet all requirements of the City. These signs depict selected materials and material categories in images for easy understanding (they are not language specific). However, standard signs will only depict some of the items used at the Event. Spectators may become confused if they cannot quickly find an image that matches the product they are attempting to discard. To help mitigate this problem, customizable signs (below) may be used.

Customizable Signs
Customizable signs are also available for places like the 2013 AC Village food court and other Venues. Images of specific items used in various retail locations can be inserted into the template

to make event custom tailored signage. Also, actual objects can be attached to signs, to create a three dimensional effect and to illustrate actual items used by vendors (see Figure 4-5). SF Environment staff will provide technical assistance in customizing signs for the Event.

Figure 4-4 – Use of customizable signs

Figure 4-4 depicts customized signs using text (and directional arrows) instead of images. The "Landfill" sign uses the words "Chip Bags" because at this restaurant, chip bags are the only item that cannot be recycled or composted.

Images and Words

The City has used images in standard issue signs to help maintain universal usage among the many languages in our constituency. Images can be very successful, especially when they depict actual products that are being generated by the venue. However, some people respond better to text than images and will prefer a "list" of recyclable or compostable items. These lists are available in Appendix A. The Project Sponsors will tailor waste signage as appropriate with images and words in order to maximize spectator use of correct discard containers.

Concept Driven Signs

Simple semantics can influence the participation in diversion programs. Custom signs will avoid the terms garbage, trash, or waste. These are all conceptual terms that are not easily defined. Waste for example, has 14 definitions in Webster's dictionary and is a noun, adjective, and verb. Waste reduction and landfill diversion is best taught by explaining what happens to the materials that are placed in each container. In the case of San Francisco, materials are composted, recycled, or sent to landfill. Using the corresponding words, "Compostables", "Recyclables" and "Landfill" will further convey the message that "not much goes to landfill in San Francisco".

5.1.7 Vendor Guidelines

While most of the waste generated from spectator activities at the Event is expected to be food packaging and service ware, sponsors and vendors can further reduce waste by providing souvenirs or merchandise that is durable, functional, and packaged responsibly. Food vendors will be encouraged to use durable or compostable food service ware as described below. These guidelines apply to vendors at Venue locations. Vendors are expected to assume some

responsibility for the wastes that are generated as a result of their operations, both front- and back-of-the-house.

Food Service Vendors

Ordinarily, the majority of non-recyclable waste from spectator, festival, and entertainment public events is disposable food service ware. At the AC Village venue, attendees may eat up to three meals and snacks from morning through closing time (midnight). The Project Sponsors will evaluate the feasibility of using durable dishes at the AC Village 2013 food court and installing dishwashing infrastructure in Pier 29. However, there may be spectator Venues where this is not feasible. The City's Food Service Ware Ordinance requires all disposable food service ware to be either compostable or recyclable. The Port's Venue Lease will encourage that all disposable food service ware be compostable based on recommendations from SF Environment experts.

Compostable Service Ware

Compostable service ware requires less separation by the public. In venues where all compostable ware is provided, users often need not separate as both the food and the service ware can be composted together.

Compostable Paper

All paper-based food service ware and packaging (with the exception of aseptic packaging) is compostable in the City's diversion programs. There are no labeling requirements for paper-based food packaging. Whenever feasible, the Project Sponsors will select paper-based compostable food service ware instead of compostable plastics, unless there is a specific reason (see Compostable Plastics below) a paper product would not be feasible.

Compostable Plastics

There are many compostable or bio-based plastic products including both simple service ware such as plates, portion cups, and utensils; as well as products such as such as water bottles or promotional items. Because of the visual and tactile similarities to petroleum based plastics, however, compostable plastics will be used only when absolutely necessary and must comply with the regulations below. Compostable plastic products that might be needed instead of paper (or petroleum plastic) alternatives include, cutlery, prepack items (for display cases), cold drinks, beer and wine, and straws. The Project Sponsors will comply with the San Francisco Food Service Ware Ordinance and the special requirements to ensure that products can be accurately identified and processed as compostable, as follows:

1. All compostable plastics must meet ASTM D-6400 standards for compostable plastics.
2. All compostable plastics must have BPI certification (www.BPIworld.org)
3. All compostable plastics must be clearly labeled with a color-coded (green) identifying marker, such as a green sticker, stripe or band on all pieces of the product (for example the cup and lid must both be labeled).

The Project Sponsors will consult with SF Environment to identify acceptable compostable plastic products.

Resources
SF Environment maintains a list of resources in regard to the Food Service Ware ordinance at this web page:
http://www.sfenvironment.org/our_programs/interests.html?ssi=3&ti=4&ii=127

Acceptable products**:**
http://www.sfenvironment.org/downloads/library/accepted_product_list_10.1.2010.pdf

Product vendors:
http://www.sfenvironment.org/downloads/library/fsw_vendor_list_2.23.2011.pdf

FAQ on Food Service Ware :
http://www.sfenvironment.org/downloads/library/22hfoodservicewareflier0608v9.pdf

BPI certified Compostable Plastics:
http://www.bpiworld.org/Certified-Bioedgradable-Foodservice-Items-Plates-Cups-Utinsels [sic]

Even when using the tools listed above, the Project Sponsors will consult directly with SF Environment staff regarding the labeling and certification requirements for each disposable food service product in use at the event.

Merchandise Vendors

Although Event spectators may discard more materials from the purchases of food than from merchandise, discards from merchandise will have a substantial impact on both upstream and downstream wastes. The Event Authority will specify a preference that vendors sell merchandise that is made with recycled content and non-toxic materials, and that is durable instead of disposable, which will enhance the Event's reputation as a sustainable spectator and sporting event and will have a long term benefit after the Event is over.

Bags
Both food and merchandise vendors are likely to provide carrier bags for customer use. The City of San Francisco has banned plastic bags from distribution at supermarkets and certain other large retailers, and if the legal opportunity were present, might extend that legislation to all retailers. Plastic bags, due to their light weight, limited recyclability and photodegradability, contribute heavily to both marine and land-based pollution.

Figure 4-5 – Plastic bag ingested by sea turtle

Due to the maritime nature of AC34, the Event Aurhority will request that all vendors at Venues use alternatives to single use plastic carrier bags, in accordance with the City's Plastic Bag Reduction Ordinance, such as recycled content paper or poly-coated bags for food service; and recycled content paper, durable or reusable cloth or woven bags for merchandise (these might be offered at a fee for consumers, thus influencing them to exercise discretion when accepting bags from merchants).

5.1.8 Collection Methods

As plans are revised for the coordination of the Event, the Project Sponsors will include the proposed types and sizes of collection containers for Venues. This will help Event staff manage the transportation of discards from disposal stations to collection containers, and will assist in other aspects of Event logistics including a reduction in disposal costs.

Carts

Containers used for spectator disposal stations may be either interim, such as cardboard containers, or carts provided by the service provider. These containers must be transported to a designated collection area where they are emptied by the service provider and either staged or returned to the disposal stations. The use of carts is more efficient in that they can be serviced directly while interim containers require reloading into other containers suitable for collection. The Project Sponsors will provide quality control at the disposal stations to remove contaminants from the recyclable and compostable material streams, or arrange with the service provider to provide post-processing services, and ensure that extra carts or interim containers are on hand to replace those set in disposal station clusters for spectator use.

Containers and Debris Boxes

For some Venues such as the AC Village, it is likely that there will be both front-of house (FOH) disposal stations for spectator use and larger collection containers for use by Event staff. Materials from the disposal stations will need to be transported to the collection containers, checked for contaminants and sorted if necessary, and materials deposited in corresponding containers designated for each of the three principal streams.

Servicing Carts and Containers

Service logistics will be coordinated with the waste service provider(s) in the planning for placement and location of collection containers and carts. With the anticipated increase of visitors to the City for the Events, it will be critical that containers are accessible by service trucks. This may mean that source separated materials are transported between Event sites and service locations to allow for access by collection trucks. The Project Sponsors will coordinate with the Port, SF Environment, and waste service provider(s) to ensure that truck access material management needs are available at all Venues.

5.1.9 Protecting the Shoreline and Marine Environment

Even with careful monitoring of containers, and a world class waste reduction and landfill diversion program, discards can end up littered on streets, especially under windy conditions, in the Bay. Local coastal stewardship organizations, including Sea Conservancy, have proposed a "Zero Waste at the Gate" plan to help mitigate the impacts of wind-blown discards. The Project Sponsors may work with these groups, where feasible, to organize mitigation measures such as, volunteer clean shoreline and marine clean-up efforts, among other measures which include educational campaigns and messaging promoting marine, land, and coastal stewardship.

5.1.10 Use 2012 Performance to Plan for 2013

The two-year time span of the Event presents an opportunity to utilize lessons learned, from 2012 to inform the strategy for waste reduction in 2013. Under the City's Special Events Ordinance, the

Venue(s) will be required to submit a post-2012 event report to the City. Per-spectator volumes as well as overall landfill diversion will be considered in preparing for 2013. To coordinate sustainability efforts, the Project Sponsors will consult with SF Environment on this report. SF Environment will help analyze the implications of data generated from 2012 and provide recommendations for 2013.

Source Reduction in 2013
The AC Village design for 2013 lends itself to an all durable Zero Waste Food Court (described in section 4.1.2.1 Key Messages: Source Reduction). It is expected that that the per attendee waste generation for 2013 may be lower than the 2012 figure due to the reduction of waste at the source.

Diversion Debriefs
SF Environment will assist the Project Sponsors in the 2013 season by using data collected in the previous year to deliver "Diversion Debriefs" or site/usage specific notes that will be useful for Event management. The Debriefs will also be useful to in coordinating with other stakeholders and City departments regarding the environmental mission and requirements of the Event.

5.2 Activities, Requirements, Resources

With multiple proposed Venues and other spectator areas for 2013, the Project Sponsors will plan waste reduction and landfill diversion into the operations for each site. This section is designed to track the types of activities that will take place in the spectator areas, the locations for each type of activity for both years, City requirements, and available resources.

5.2.1 Activities

The main hub of activity for the Event will be the AC Village, which is proposed to be located at the Marina Green and Piers 27-29, respectively in 2012 and 2103. Live entertainment, race viewing, sponsor displays, and hospitality including food and beverage and merchandising is proposed to occur at the AC Village between 9:30 am and midnight on each of the scheduled days for the Event. Table 5-1 below shows the proposed typical activity at AC Village on any given event day.

Table 5-1
Typical Activity program at America's Cup Village (AC Village) on
34TH America's Cup (AC34) race days

Time	Activity Program
9:30 a.m.	AC Village opens
10:00 a.m. – 11:00 a.m.	Live Entertainment on stage; boat activities/animations

11:00 a.m.– 12:00 noon	"The America's Cup Dock-out Show" • Introduction of all teams via presenter and giant screens • Crew getting the catamarans ready • Boat parade to the race course • Interviews, games, interaction (e.g. lucky winners of sweep stakes would board chase boat to go out to race course)
1:00 p.m. – 5:00 p.m.	Racing • Live commentary, interviews and animations to the broadcast of racing on the giant screens in AC Village and at Event Live sites • Visitors on grand stands following the racing at AC Village and at Live Sites
5:00 p.m.– 8:00 p.m.	After-Race Show • AC72 racing yachts return to AC Village • Press Conferences, TV Interviews • Music, demonstrations
8:00 p.m. – 12:00 midnight	Event Action and Entertainment
12:00 midnight	AC Village closes

SOURCE: America's Cup Event Authority, 2010

The activities in each spectator location are less varied and smaller in scale than the AC Village. For informational purposes, Table 5-2 below shows the types of activities at each Event location (not just Venues) in 2012. Table 5-3 provides the same information for 2013.

TABLE 5-2
AC34 2012: PROPOSED VENUES AND KEY FACILITIES

Venue	AC34 2012 COMPONENT										
	Temporary Component										Permanent Component
	Team Bases and Team Base Support	AC Village	Spectator Venue[a]	Hospitality Services (Food and Beverage, Merchandising, etc.)	Installation of Spectator Seating	Installation of Berthing Facilities for AC34 Race/ Support Boats and/or Private Spectator Boats	AC34 Operations, storage and/or ancillary	Dedicated AC34 Parking[b]	Media Operations / Broadcasting Equipment	Corporate and Private Functions	
Pier 80[C]	✓			✓e		✓	✓	✓			
Piers 30-32[C]	✓			✓e		✓					• Seismic upgrades and repair, including: - Repair and strengthen marginal wharf, install a seismic joint, strengthen the existing pier deck from the marginal wharf to the valley between Piers 30-32 to support heavy truck loads, install piles/caps to increase lateral capacity - Remove/replace portions of deck, reinforcing steel, soffit and piles - Install structure to raise depressed area between Piers 30 and 32 - Install stormwater management features
Piers 32-36 Open Water Basin[C]	✓					✓					• Dredging of portion of water basin to approximately -17 feet mean lower low water (MLLW)

Pier 26 and Pier 28[c] Piers 28-30 Water Area	✓						✓	✓			• Fire, safety, and access improvements • Roof and exterior wall repairs and replacement, lead paint and asbestos abatement, waterproofing, mechanical system upgrades, deck resurfacing, new utility services • Dredging between Pier 28 and Pier 30 to approximately -12 feet MLLW • Possible apron and fender repairs
Pier 19 and Pier 19½[d]							✓	✓			• Repair of the deck and piling for the north and south aprons, if needed • Fire, safety, and access improvements, if needed
Marina Green		✓		✓	✓	✓f		✓	✓	✓	
Aquatic Park			✓	✓						✓	
Crissy Field			✓	✓	✓			✓		✓	
Fort Mason			✓ (private)	✓ (private)		✓		✓	✓	✓	
Alcatraz			✓ (private)	✓ (private)					✓g	✓	
Fort Baker Pier at Cavallo Point			✓ (private)	✓ (private)				✓	✓g	✓	
Live Sites (Justin Herman Plaza, Union Square and San Francisco Civic Center)			✓	✓							

[a] Spectator venues are designated locations besides the AC Village where public and/or private hospitality services and/or spectator seating accommodations are proposed as part of AC34. See text for details.
[b] Certain existing parking/paved areas dedicated to serve AC34 staff, guests and/or public for event.
[c] Under Team Base Option 1, Piers 30-32, Piers 32-36 Open Water Basin, and Pier 26 and Pier 28 sheds would serve as the preferred primary team bases, and Pier 80 would be used as the ancillary team bases, for AC34 2012. This assumes all proposed temporary and/or permanent improvements at these locations would be completed, and associated required permits would be secured, in time for the 2012 event. Otherwise, Team Base Option 2 would occur, in which case Pier 80 would serve as the primary team bases for AC34 2012, and Piers 30-32, Piers 32-36 Open Water Basin, Pier 26 and Pier 28 would not be used for the 2012 event. See text for details.
[d] Permanent Improvements at Piers 19 and 19 ½ may occur as part of AC34 2012 or AC34 2013.
[e] Hospitality services (e.g., catering facilities) at Pier 80 and/or Piers 30-32 for team bases only.
[f] There is no proposed installation of temporary berthing facilities dedicated for private spectator boats, although there is the potential that AC34 sponsor-related berths may be used by private spectator boats at this location for pickup and dropoff.
[g] Location for minimal equipment (e.g., satellite dishes)

SOURCE: America's Cup Event Authority; AECOM, 2011

TABLE 5-3
AC34 2013: PROPOSED VENUES AND KEY FACILITIES AND IMPROVEMENTS

Venue	AC34 2013 COMPONENT										
	Temporary Project Component										Permanent Project Component
	Team Bases and Team Base Support	AC Village	Spectator Venue[a]	Services (Food and Beverage, Merchandising,	Installation of Spectator Seating	Facilities for AC34 Race/ Support Boats and/or Private AC34 Operations,	storage and/or ancillary	Dedicated AC34 Parking[b]	Operations / Broadcasting	Corporate and Private Functions	Proposed
Pier 80	✓[c]			✓[d]		✓	✓	✓			
Piers 30-32[e]	✓			✓[d]		✓					• Seismic upgrades and repair, including: - Repair and strengthen marginal wharf, install a seismic joint, strengthen the existing pier deck from the marginal wharf to the valley between Piers 30-32 to support heavy truck loads, install piles/caps to increase lateral capacity - Remove/replace portions of deck, reinforcing steel, soffit, and piles - Install structure to raise depressed area between Piers 30 and 32 - Install stormwater management features
Piers 32-36 Open Water Basin[e]	✓					✓					• Dredging of portion of water basin to approximately -17 feet mean lower low water (MLLW)
Pier 26 and Pier 28[e] Piers 28-30 Water Area	✓					✓	✓	✓			• Fire, safety, and access improvements • Roof and exterior wall repairs and replacement, lead paint and asbestos abatement, waterproofing, mechanical system upgrades, deck resurfacing, new utility services • Dredging between Pier 28 and Pier 30 to approximately -12 feet MLLW • Possible apron and fender repairs
Seawall Lot 330								✓			
Rincon Point Open Water Basin (Piers 14-22½)						✓					• Dredging of portion of water basin to approximately -12 feet MLLW
Pier 19 and Pier 19½[f]				✓		✓	✓	✓			• Repair of the deck and piling for the north and south aprons, if needed

Venue	AC34 2013 COMPONENT										
	Temporary Project Component										Permanent Project Component
	Team Bases and Team Base Support	AC Village	Spectator Venue[a]	Services (Food and Beverage, Merchandising,	Installation of Spectator Seating	Berthing Facilities for AC34 Race/ Support Boats	AC34 Operations, storage and/or ancillary	Dedicated AC34 Parking[b]	Operations / Broadcasting	Corporate and Private Functions	Proposed
											• Fire, safety, and access improvements, if needed
Pier 23				✓		✓	✓		✓		• Repair of the deck and piling for the north and south aprons, if needed • Fire, safety and access improvements, if needed
Piers 27-29 Northeast Wharf Open Water Basin (Piers 19-23 and Piers 23-27) Piers 29-31 Water Area		✓		✓	✓	✓				✓	• Demolish Pier 27 shed and portion of Pier 29 shed, and construct new Pier 29 shed east/corner wall • Demolish Pier 27 annex building • Construct Pier 27 cruise terminal core building and shell • Repair surface and provide Americans with Disabilities Act (ADA) access • Repair the Piers 27-29 substructure, if needed • Strengthen and seismically upgrade Pier 29 superstructure, if needed • Repair Pier 29 apron and fendering, if needed • Relocate shoreside power • Install stormwater management features • Repair Piers 27-29 and Piers 29-31 marginal wharfs, if needed
Pier 29½							✓g				
Other Water Areas Piers 9-15 water area Piers 17-19 water area Fort Mason											• Possible apron and fender repairs at one or more of these areas.
Crissy Field			✓	✓	✓			✓		✓	
Marina Green			✓	✓	✓			✓		✓	

Venue	AC34 2013 COMPONENT										
	Temporary Project Component										Permanent Project Component
	Team Bases and Team Base Support	AC Village	Spectator Venue[a]	Services (Food and Beverage, Merchandising,	Installation of Spectator Seating	Berthing Facilities for AC34 Race/ Support Boats	AC34 Operations, storage and/or ancillary	Dedicated AC34 Parking[b]	Operations / Broadcasting	Corporate and Private Functions	Proposed
Fort Mason			✓ (private)	✓ (private)				✓	✓	✓	
Aquatic Park			✓	✓						✓	
Alcatraz			✓ (private after-hours)	✓ (private after-hours)					✓h	✓	
Fort Baker Pier at Cavallo Point			✓ (private)	✓ (private)				✓	✓h	✓	
Live Sites			✓	✓							

5.2.2 Requirements and Resources

For each Venue, the Project Sponsors will comply with all local ordinances including the following requirements that pertain to waste reduction and landfill diversion.

Disposal Stations and Signs
Clusters of color coded, signed bins for the separation of discards into recyclable, compostable and landfill bound materials, as described in Chapter 4, are required for each Venue. The number and size of the stations will be commensurate with the expected number of visitors to each location, and they will meet the requirements for signage and visibility as specified in the Mandatory Recycling and Composting and Special Events Ordinances.

Point of Disposal Outreach
Spectator discards will be sorted into the appropriate material streams on Venue sites through use of clear signage and training of staff and volunteers. Using all compostable or durable food service ware will help mitigate the need for monitoring and outreach, but based on the experience of other events in San Francisco, monitoring and some sorting may be needed in order to achieve acceptable waste diversion. The investment in point of disposal outreach, including outreach and monitoring will help decrease the need for post event pre-processing.

Post Event Pre-Processing
Before materials are hauled off site, the contaminants may need to be either sorted or removed from the respective material streams. Organic material should not contain any plastic or other non-degradable materials. Recycling should be free from food and liquid as well as other non-recyclable contaminants such as film plastics. Landfill wastes should be free from recyclable and compostable materials. The waste services provider(s) will provide adequate space and staffing to ensure that the quality of these material streams is maintained throughout the event Venues.

Commercial Hauling Services
Commercial hauling services for municipal solid waste are currently managed by Recology and hauled to their processing sites. The capacity of the containers required at each venue will reflect the amount of waste expected to be generated based on spectator calculations for each venue. The Project Sponsors will coordinate with Recology to ensure that space will be identified for pre-processing as indicated above.

Post Event Clean-up and Litter Removal
Discards and litter that have not been placed into the proper containers will be collected and placed into the appropriate container. The Project Sponsors will also work with coastal and marine conservancy organizations to address materials that may have drifted into the bay.

Vendor Selection and Training
All vendors, both food and merchandise, will be required to attend a Zero Waste Plan training that will instruct them on local ordinances, Event guidelines and best practices. SF Environment will provide these trainings and can collaborate with the Project Sponsors for resources, speakers, and other technical assistance. To the extent feasible, training and collaboration will take place well in advance of vendor purchasing decisions.

Section 6
Services Needed, Estimated Quantities, and Costs

6.1 Introduction

The Agreement is strongly oriented toward sustainability, and the estimated quantities and costs for recycling and disposal services are an important component. Hence, this Section provides estimated quantity and/or cost information for the services needed at the sites identified as part of the Venue.

The basis for the service volume and cost estimates in this Zero Waste Plan is the June 14th, 2011 version of AECOM's report: "Analysis of Potential Visitation Patterns for America's Cup 34."

In the future, quantities and costs presented herein may need to be adjusted to take into account changes and refinements in the design of facilities and the finalized sequence of events planned for 2012 and 2013.

6.1.1 Overview of Methodology

SF Environment has directed its Technical Assistance consulting team, the Renewable Resources Group at Environmental Science Associates (ESA), to develop quantity estimates for the recycling and refuse services needed at and near the Venue locations. These estimates are being reviewed by the City's primary service provider, Recology San Francisco. The finalized quantity estimates are being used as the basis for cost estimates, which Recology is developing with assistance from ESA, in close cooperation. ESA has compiled these into an electronic spreadsheet file which is summarized in the tables that appear later in this Section.

The estimates have been organized into three groups that correspond to the organization of the Zero Waste Plan:

- Demolition and Construction Work
- Support Facilities
- Spectator Sites

In addition, SF Environment has worked with a green event management company to develop estimates for the cost to provide crews and equipment to capture discards from the proposed spectator sites and Live Sites. These have been incorporated into the cost estimate table as single elements within the Support Facilities group and the Spectator Sites group. They are not further subdivided by site.

Below are lists of assumptions and related considerations that arose when preparing the quantity and cost estimates. Subsequent pages contain a series of tables; these begin with a table

summarizing all costs, followed by tables providing a breakdown for each group of sites. In addition, electronic copies of the estimate worksheets (Excel files) are available to SF Environment staff for future adjustments. Detailed assumptions, such as the space per spectator assumed for Live Site venues, are embedded within those files and should be reviewed when adjustments are made.

Recycling and disposal costs are based on rates in effect in April 2011. By 2012 and 2013, they may change for several reasons:

- Collection and processing costs may vary as future changes in the price and availability of crude oil will affect the cost of operating diesel trucks and other equipment.
- General inflation may occur.
- The quantities of boats containing food related discards that have originated in other countries is uncertain. These discards must be controlled and sterilized to eliminate pathogens and agricultural pests. The Department of Homeland Security has complex and stringent guidelines for handling these materials. The costs shown are adapted from current practice in San Francisco, but the unique aspects of the Event require close coordination with Homeland Security to develop an approach that is both compliant and feasible.
- If it is determined that certain high-volume sites can be served more efficiently with a compactor, pricing will necessarily change.

As of this revision, the following aspects of America's Cup events are not included in the quantities and costs estimated herein:

- Some locations outside of the Venue itself: park sites on City and NPS lands, Angel Island in Marin County, Treasure Island, Pier 39, and other viewpoints accessible to the public, including streets and walkways in the Telegraph Hill and Russian Hill neighborhoods.
- Alcatraz, where regulations require pack-out of all discards by users/vendors.
- The Defender Selection Series of races, which may or may not occur in conjunction with the Louis Vuitton Cup, America's Cup Challenger Series in 2013.
- The Youth America's Cup, which is being discussed by America's Cup officials as a possibility in 2012 and 2013.
- Dredging.
- Construction and deconstruction work to prepare Event sites (recycling and refuse services are included in these estimates, but the construction and deconstruction work itself is not).
- Hazardous waste management and disposal.
- Disposal, sale or reuse of temporary docks and their pilings.
- The provision of semi-permanent equipment needed for waste prevention, such as durable food service ware and dish washing equipment at permanent food service

locations (e.g. AC Village), drinking water dispensers, secure storage for overwintering dock sections, etc.

- Normal janitorial / custodial work within Venue sites.
- Labor for litter control, provided by Event management, the Department of Public Works and/or the Port of San Francisco
- Extension of transit services; installation of signage on City streets; and other public improvements not described in the Draft EIR Project Description.

For several elements of the Event, recycling and disposal quantities and costs have been estimated based on very limited information. All of the estimates, but particularly these elements, should be re-evaluated when more detailed information is available:

- The scope of pier repairs to be performed in connection with the Event.
- The estimated numbers of spectators at specific venues, and using moored spectator boats.
- The space available for recycling containers, and the potential advantages (and disadvantages) of using compactors where space is constrained.

6.2 General Assumptions

The following assumptions apply to all quantity estimates made for this Zero Waste Plan:

- Estimated numbers of spectators are based on the June 14th, 2011 version of AECOM's report: "Analysis of Potential Visitation Patterns for America's Cup 34," figures 9-14.
- Estimated costs are based on estimated service levels, which depend on estimated number of spectators given by AECOM. AECOM broke down number of spectators by weekend and weekday categories. For our calculations, each venue was assumed to have an equal number of events occurring on weekends and weekdays, on a weekly basis. This assumption is based on an analysis of event days as provided by America's Cup Authorities, which show a roughly equal proportion of event days occurring on weekends and weekdays.
- For spectators on boats, estimated numbers are based on boat length. Larger boats will have live-aboard crews and some live-aboard passengers, with many additional day-guests on race days. In addition to discard generation from daily live-aboard activities, additional generation was calculated based on empirical bar/lounge volumes, adjusted for boat size and estimated frequency of functions/parties. All demolition and construction projects described in the Project Description and NOP will be completed as described in time for their intended use.
- Food, beverage and merchandise vending at spectator sites within Venue locations will be set up using temporary tent-style booths, similar to a street fair. As a result, no construction and/or demolition materials will be generated by this activity.
- Two America's Cup World Series race events will be held in San Francisco in 2012.

- A portion of the largest spectator boats (100 feet or longer) will come to the Bay Area from other countries and will have discards that originated in those countries for their first three to five days moored in San Francisco.

Also, as noted above, for some areas of San Francisco that are not near the shore of the Bay or adjacent to the Venue locations, quantity estimates have not been prepared. These locations are likely to have spectators and Event-related waste management needs. City Departments, including Public Works and Recreation and Parks, will coordinate with concerned citizens and neighborhood associations to address these needs. In addition, quantity estimates were not prepared at Fisherman's Wharf, where existing waste management infrastructure is expected to accommodate the majority of discards.

6.2.1 Descriptions of Services

6.2.1.1 Construction and Demolition

These services typically involve providing large-volume containers to receive and process either mixed construction and demolition debris, or materials that have been separated during the demolition or deconstruction process. For example, a container 30 cubic yards in size might be provided to a pier site to receive scrap lumber from the dismantling of a roof deck. Services may also include receiving truckload quantities brought directly to processors in San Francisco, by Recology trucks or third party trucks. Loads of demolished concrete and scrap metal are often handled in this fashion.

6.2.1.2 Support Facilities

Activities at support facilities will include the storage, display, maintenance and repair of boats; crew support such as dining, dormitory and similar facilities; and the installation, overwintering and removal of temporary pier structures. Moored spectator boats at various open water basins are also considered to be within support facilities. Most of the services to these facilities will resemble services to medium or large-sized businesses in San Francisco. Crews, janitors and similar workers will bring compostables, recyclables and trash to bins located where they may be readily serviced by collection trucks.

6.2.1.3 Spectator Sites (Including Live Sites)

At spectator sites, which have a direct view of the race course, clusters of small containers will be provided so that spectators have the ability to separate compostables, recyclables and trash. These will be tended by workers who will instruct spectators on proper separation and keep the clusters from overflowing. At most sites, it is expected that collected materials will be placed into bins or boxes at each site for collection.

Live Sites may involve a large number of seated spectators viewing jumbo video displays of race events, and will also have vendors providing food, beverages and merchandise. These will be managed similarly to Spectator Sites, but with care to place receptacles where they are easiest to use.

6.3 Need for Adaptive Management

Many aspects of the Event are historical firsts. To name a few:

- First time held within a Bay surrounded by spectator viewing opportunities
- First time in San Francisco
- First time with unique style of racing boat

Moreover, this is the first time that an event of this magnitude has been managed in San Francisco with the goal of Zero Waste. The level of resources to be devoted to the Zero Waste message, and the public's ability to fully understand and cooperate, will be assessed up to, and through, the Event itself.

For these reasons, managing discards to minimize landfilling will necessarily be an exercise in adaptive management, changing levels and types of service, intensifying outreach where necessary, and remaining flexible about site locations and usage levels from start to finish. This is one of the primary reasons that the Project Sponsors will need to coordinate and remain actively involved in the further development of the Zero Waste Plan and its execution.

6.4 Tables

Tables 6-1 through 6-4, below, provide a breakdown of costs, as an overview and then by site for each year. Note that although this Zero Waste Plan is for Venues leased by the Port, these tables include estimates for non-Port leased spectator venues.

Table 6-1
AC34 2012 aND ac34 2013 WASTE MANAGEMENT COSTS: Overview

Component	AC34 2012	AC34 2013
Demolition and Construction Work	$ 743,094	$ 32,351
Support Facilities	55,053	377,600
Spectator Venues	664,634	2,268,903
Total	$1,462,780	$2,678,854

Totals may not match precisely due to rounding.

Table 6-2
AC34 2012 and AC34 2013 WASTE MANAGEMENT COSTS: Demolition and Construction

Element	**AC34 2012**	**AC34 2013**
Piers 27-29	**$ 510,218**	**$ 0**
Pier 23	**27,037**	**29,878**
Pier 19, 19-1/2	**33,420**	**0**

Piers 26 and 28	**14,949**	**0**
Piers 30 and 32	**23,678**	**0**
Pier 80	**46,051**	**0**
Floating Docks	**87,742**	**$ 2,474**
Total	**$ 743,094**	**$ 32,351**

Table 6-3
AC34 2012 aND ac34 2013 WASTE MANAGEMENT COSTS: Support Facilities

Element	AC34 2012	AC34 2013
Piers 27-29 (AC Village 2013)	0	200,335
Piers 19, 19½, 23 (Media, Ops, Storage, 2013)	0	20,813
Spectator Boat Mooring, Piers 19, 19-1/2, 23	0	11,728
Spectator Boat Mooring, Piers 14 - 22-1/2	0	26,139
Parking, Ops, Berthing, Support, Piers 26 - 28	0	30,337
Team Base and Support, Piers 30 - 32	0	15,228
Team Boat Docks, Piers 32 - 36	0	8,077
Team Base 2012, Aux Base 2013, Pier 80	16,463	4,743
International Wastes	27,520	60,200
Total	$ 52458	$377,600

Appendix A
Signs

Signs are available from SF Environment for Recyclable, Compostable and Landfill designation. Each sign is available online (the URL above each sign will link to the design for printing), or printed versions can be obtained through the SF Environment. Please contact 355-3700 for assistance.

Standard Signs

http://sfrecycling.com/commercialRecycling.htm

http://sfrecycling.com/commercialCompost.htm

http://sfrecycling.com/commercialLandfill.htm

Custom Signs Template

Customizable signs are also available for places like the 2013 AC Village food court. Images of specific items used in various retail locations can be inserted into the template to make easy event tailored signage. Also actual objects can be attached to signs, to create a three dimensional effect and to illustrate actual items used by vendors. SF Environment staff will provide technical assistance in customizing signs for the event.

http://sfrecycling.com/pdf/recycling_poster_blue2.pdf

http://sfrecycling.com/pdf/compost_poster_green3.pdf

http://sfrecycling.com/pdf/waste_poster_black2.pdf

Text Based Lists

The lists are useful as supplementary information that might be displayed in other areas, such as sponsor displays, in programs, training materials, or other print brochures.

http://sfrecycling.com/pdf/Acceptable_Blue_Cart_Items.pdf

http://sfrecycling.com/pdf/Acceptable_Green_Cart_Items.pdf

http://sfrecycling.com/pdf/Acceptable_Black_Cart_Items.pdf

Addendum 1

Planning for Hazardous Wastes Related to AC34 Activities

As stated in the Introduction the AC34 Zero Waste Plan, the prospect of staging the America's Cup races for the first time in close proximity to an urban waterfront provides a tremendous opportunity to continue the City of San Francisco's leadership role in resource conservation. This Zero Waste Plan sets forth plans accepted by the City and the Event Authority consistent with best environmental practices with the intent of making the 34th America's Cup a zero waste event.

This Addendum to the Zero Waste Plan focuses on the hazardous waste component of the discard stream. It is intended to provide guidance for minimizing the impact of toxic materials on human health and the environment. Specifically, it addresses the following aspects of managing the hazardous waste stream expected to result from hosting the Event in San Francisco:

- Laws and policies that govern hazardous waste management;
- Types and sources of hazardous materials;
- Existing hazardous waste management infrastructure and facilities;
- Issues and Recommendations for improvements to existing infrastructure and facilities; and
- Outreach opportunities to prepare and educate generators.

As with the larger Zero Waste Plan, this addendum for hazardous waste management is based on current knowledge of planned Event activities and estimates of participation by teams, spectators, sponsors, and the media. As details of the Event are developed, the Event Authority, the Port, SF Environment, NPS, Recology, among others, will adjust the waste management systems accordingly. This adaptive management approach is expected to continue through the Event; activities in 2012 will provide a variety of lessons to be applied in 2013.

The relevant information provided herein will be included in the outreach to boaters visiting San Francisco to participate in AC34 as participants, spectators, sponsors, and media, as discussed below in Section 6. The AC34 Draft EIR, in response to potential adverse impacts from the Event on sensitive marine or estuarine natural communities, includes the proposed Mitigation Measure M-BI-12: Visiting Mariners Information, which says that "…the AC34 project sponsors shall prepare as part of their Water and Air Traffic Plan information for visiting mariners … about sensitive habitats and species in the Bay and actions they are required to implement to avoid impacts to marine resources. The plan shall also include information on how to employ environmentally sound boating practices and where to find environmental services to ensure clean boating habits. The plan shall identify marinas that are available for use by visiting

mariners (e.g., marinas in San Francisco and Marin County) and provide information about the locations of environmental services that boaters in these marinas are most likely to need. Educational materials shall clearly address, in multiple languages, common sources of pollution from boats and marinas and outline relevant regulations and clean boating policies."

1.1 Definitions

Hazardous Waste - The State of California defines hazardous waste in California Health and Safety Code, Section 25517, and in the California Code of Regulations (CCR), Title 22, Section 66261.2 as waste materials that, "because of their quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed." The CCR also lists regulated hazardous wastes.

Generally, a waste is considered hazardous if it exhibits one or more of the following characteristics:

- Ignitable (can catch fire under certain conditions);
- Corrosive (acidic or alkaline; can cause burns; eats or wears away metals and other materials);
- Toxic (poisonous): contains toxic metals (cadmium, chromium, lead, copper, barium, nickel, zinc) or organics, as specified in regulations, or is otherwise harmful or fatal to humans or wildlife when eaten, inhaled, or absorbed through the skin;
- Reactive (can react violently or explode under standard conditions, or releases toxic gases on contact with water).

Universal Waste - Universal wastes (examples include televisions, computers, computer monitors, batteries, non-empty aerosol cans, and fluorescent lamps) are considered hazardous upon disposal but pose a lower risk to people and the environment than other hazardous wastes. Universal wastes pose less risk that other hazardous wastes, but still must be handled carefully and according to state and local laws.

Hazardous Waste Generator - According to Title 22, section 66260.10A of the CCR, a "generator" is any person, or site, whose actions or processes produce hazardous waste or whose actions first causes a hazardous waste to become subject to regulation.

Section 2
Laws and Policies

State and local agencies often have either parallel or more stringent rules than federal agencies. In most cases, state law prevails over federal law and enforcement of these laws is the responsibility of the state, or of a local agency to which enforcement powers are delegated.

2.1 Federal Laws

Clean Water Act, Section 311 prohibits the discharge of fuel, oil, oily wastes, and hazardous substances into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are liable for the cost of the clean up and are also subject to substantial civil penalties and/or criminal sanctions, including fines and imprisonment for unlawful discharges. If a discharge occurs, the responsible party must control the source of the discharge, prevent further discharges, halt or slow the spread of the discharge, and remove as much of the substance as possible using mechanical means such as containment booms, vacuum trucks and absorbents. In addition, all boats 26 feet or longer must display an oily waste discharge placard in the engine compartment or near fuel pumping stations that notifies passengers and crew about discharge restrictions.

The International Treaty to Prevent Pollution from Ships (MARPOL V) prohibits dumping plastic into the water anywhere and restricts dumping of other forms of garbage within specified distance from the shore. The law applies to all ocean going vessels, recreational and commercial.

The Federal Refuse Act prohibits discharging or depositing any refuse matter of any kind into Unites State Waters. Refuse includes: garbage, trash, oil and other liquid pollutants.

The **Federal Ocean Dumping Act** states that no person shall dump any materials transported from a location outside the United States (1) into the territorial sea of the United States, or (2) into a zone contiguous to the territorial sea of the United States.

United States Code 1321 Oil and Hazardous Substance Liability prohibits the discharge of fuel, oil, oily waste and hazardous substances into or upon the navigable water of United States waters.

The Resource Conservation and Recovery Act (RCRA) provides, in broad terms, the general guidelines for the waste management program envisioned by Congress. It includes a Congressional mandate directing EPA to develop a comprehensive set of regulations to implement the law. The hazardous waste program, under RCRA Subtitle C, establishes a system for controlling hazardous waste from the time it is generated units its ultimate disposal – in effect, from "cradle to grave." 40 CFR Part 260 contains all of the RCRA regulations governing hazardous waste identification, classification, generation, management and disposal.

The U.S. Department of Transportation (DOT) has developed regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. The DOT regulations specify packaging requirements for different types of materials. The U.S. EPA has also promulgated regulations for the transport of hazardous wastes. These more stringent requirements include tracking shipments with manifests to ensure that wastes are delivered to their intended destinations. Applicable Federal regulations are contained primarily in Titles 40, and 49 of the CFR.

2.2 California Laws

"RCRA" wastes include hazardous wastes regulated by the federal government and by California. Hazardous wastes regulated only under California's hazardous waste laws include certain metals, such as copper, nickel, and zinc, which are not regulated under RCRA. Those who generate less than 220 pounds (approximately 27 gallons of liquid) of RCRA hazardous waste per month are not subject to many of the federal hazardous waste rules, but are still subject to the California rules.

The California Environmental Protection Agency (CalEPA) establishes regulations governing the use of hazardous materials in the State. The Office of Emergency Services (OES) coordinates State and local agencies and resources for educating, planning, and warning citizens of hazardous materials, hazardous materials emergencies, including organized response efforts in case of emergencies. The California Highway Patrol (CHP) and the California Department of Transportation (Caltrans) are the State enforcement agencies for hazardous materials transportation regulations. Transporters of hazardous materials and waste are responsible for complying with all applicable packaging, labeling, and shipping regulations.

Department of Toxic Substances Control (DTSC). Within CalEPA, the DTSC has primary regulatory responsibility for hazardous waste management and cleanup. Requirements place "cradle-to-grave" responsibility for hazardous waste disposal on hazardous waste generators. Generators must ensure that their wastes are disposed of properly, and legal requirements dictate the disposal requirements for many waste streams (e.g., banning many types of hazardous wastes from landfills). Enforcement of regulations has been delegated to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the Hazardous Waste Control Law. State regulations applicable to hazardous materials are contained in Title 22 of the CCR. Title 26 of the CCR is a compilation of those sections or titles of the CCR that are applicable to hazardous materials management.

DTSC has specific regulations for empty containers that have contained a hazardous material or hazardous waste. The DTCS defines the standard for defining which "empty" containers are not regulated as hazardous waste, and special provisions apply to a variety of containers. Containers which previously held acute or extremely hazardous waste are considered empty only if the container has been triple-rinsed using a solvent capable of removing the material, or cleaning by

another method which is proven to achieve equivalent removal to triple-rinsing. Such activities may require formal authorization (permitting) by DTSC or the local regulating agency. For more detail see the DTSC's "Managing Empty Containers" fact sheet.[13]

Regional Emergency Coordination Plan, Hazardous Materials Subsidiary Plan. Appendix E: Response to an Oil Spill in Bay Area Waters describes the various plans and agency roles and responsibilities in the case of a large scale oil spill including the requirement that oil and chemical spills be reported to both the National Response Center 800-424-8802 and the State Line 800-OILS911.

2.2.2 Universal waste

State and Federal regulations identify which discards are considered universal waste and provide simple rules for handling and recycling of them. These regulations are found in the California Code of Regulations, Title 22, Division 4.5, Chapter 23. Regulations prohibit sending universal waste to a municipal solid waste (garbage) landfill. The following wastes must be sent to a universal waste recycling center or be treated as hazardous waste:

- cathode ray tubes (TV and computer glass)
- lamps
- mercury thermometers
- mercury switches
- mercury gauges
- dilators and weighted tubing
- gas flow regulators
- counterweights and dampers

2.3 Local Laws

The City and County of San Francisco has enacted local regulations to ensure the safe handling of hazardous materials and hazardous wastes. The following sections of the San Francisco Health Code, implemented by the San Francisco Department of Public Health (DPH) as the Hazardous Materials Unified Program Agency (HAUPA) would apply to the potential to the use of hazardous materials at the 34th America's Cup:

- **Article 21 (Hazardous Materials)** provides for safe handling of hazardous materials in the city. It requires any person or business that handles, sells, stores, or otherwise uses specified quantities of hazardous materials to keep a current certificate of registration and to implement a hazardous materials business plan (HMBP). Threshold quantities are 500 pounds for solids, 55 gallons for liquids, and 200 cubic feet for compressed gases. Every business that must implement an HMBP must also obtain a certificate of registration certifying that the HMBP meets the requirements of Article 21. This article

[13] available at http://www.dtsc.ca.gov/HazardousWaste/upload/Managing-Empty-Containers.pdf

also specifies requirements for the installation and operation of underground storage tanks, reporting of unauthorized releases, and closure of permitted facilities.

- **Article 21A (Risk Management Plan)** requires any business that handles, sells, stores, or otherwise uses regulated substances in quantities exceeding specified threshold amounts to register with the DPH and prepare a Risk Management Plan. The Risk Management Plan must be submitted to the DPH before a Certificate of Occupancy can be issued.

- **Article 22 (Hazardous Waste)** provides for safe handling of hazardous wastes in the City. It authorizes the DPH to implement the state hazardous waste regulations, including authority to conduct inspections and document compliance.

Section 3
Types and Sources of Hazardous Materials

The scope of this plan is limited to the Event Venues, and this section focuses on aspects of the Events that are expected to generate hazardous waste from Venue boat and marina activity. Also included in this section are activities associated with recreational boats (including large yachts), support boats, media boats, and marina-related activity including race team operations and media headquarters. It does not include construction and demolition (C&D) related hazardous waste. Please refer to Section 5.17, of the Environmental Setting, Impacts and Mitigation Measures of the Draft Environmental Impact Report for a complete discussion of how Hazardous Materials associated with construction will be managed.

3.1. Spectators and Recreational Boaters

The number of boats in the San Francisco Bay carrying spectators is expected to peak at 880 in 2013, with the large majority being recreational boats. Table 3-1 lists the expected number of vessels on an Average Peak Day in 2013 and the passengers associated with them. Though commercial charters and large private yachts are fewer in number, they carry much larger passenger loads.

Table 3-1 – Expected Water-based Spectators for AC34 2013

Type of Boat	# of Boats	Avg. No. of Passengers per Boat	Total No. of Passengers
Recreational	800	12	5,560
Commercial Charters	20	150	3,000
Large Private Yachts	60	30	1,800
TOTAL ALL BOATS	**880**	**12**	**10,360**

Source: AECOM

Recreational boaters generate a variety of waste as part of normal operations, including wastes from engine oil changes and bilge water pumping. The following represents a list of hazardous waste materials commonly generated by boaters:

- Used motor oil, filters, oily rags
- oily bilge water

- industrial oil
- fuel oil
- solvents
- wood stains
- paint thinners
- paints (some copper-based)
- cleaners, consumer and industrial
- flares

It is assumed that the majority of recreational boats and commercial charters carrying spectators will be locally based at existing San Francisco Bay marinas. The proposed plan for hosting Event-related visiting spectator, sponsor, and media boats, and large yachts from outside the Bay Area is to berth some of them at temporary floating docks along the SF waterfront, which are all managed by the Port. Additional berths may be provided at Marina Green.

Though it is difficult to predict the number of boats visiting from outside the Bay Area, it is estimated that the large private yachts may make up a significant portion of those boats in terms of impacts and need for local services. It is common practice for owners (or their representatives) of large oceangoing yachts to pre-arrange and pay for the services they will need while berthed, such as standard maintenance and waste disposal.

3.2 AC34 Race Team Operations

During the AC34 events, the team bases constructed on Piers 30-32 and Pier 80 would be used for boat maintenance and repair. Additionally, boat fabrication and assembly would occur at Pier 80. Boat repair and maintenance facilities typically use and store a wide range of chemicals and other materials, many of which may be hazardous, including fuels, oils, alkaline and acidic solutions, cleaning solvents, disinfectants, detergents, degreasers, rust inhibitors, and antifouling paints. At Pier 80, much of the boat fabrication and assembly would be conducted within Shed A to provide a clean and enclosed environment necessary for the adhesive and laminating processes.

The use of hazardous materials at team bases at Pier 80 and Piers 30-32 will be subject to the federal, state and local requirements for hazardous materials as outlined above.

3.3 Race Operations and Media Headquarters

Locations for Race operations and media headquarters have been designated for 2012 and 2013. In 2012, the America's Cup World Series race operations will likely be managed from the America's Cup Village in the Marina Green area, with equipment storage occurring there and at Pier 80. In 2013, race operations will require considerably more space for the Louis Vuitton Cup, America's Cup Challenger Series and the final AC34 Match. Piers 26 and 28, Pier 19, and portions of Pier 80 are likely to be used for this purpose. In 2012, the Media Center is planned to be located at Marina Green; in 2013, the Media Center is planned to be at Pier 23.

Other than potentially significant amounts of electronic waste (e-waste) from media operations, the waste generated by race operations and media headquarters is likely to represent typical non-hazardous office waste. The Project Sponsors will give special attention to providing options for the repair of electronic equipment, as well as the recycling of spent batteries, electronic media such as compact discs (CD's) and USB drives, and other items frequently disposed of by media staff, including press kits and binders.

3.4 Marina and Marina Support Businesses

An increase in boat traffic will increase the demand for services from marinas and maritime support businesses, including supply stores, repair and maintenance services, fueling, and vessel pump-out operations. Marinas themselves often provide a multitude of these services to recreational boaters, including bilge and sewage pump-out services, and resources to help collect and manage hazardous wastes. Most marinas have a service capacity that exceeds regular demand and this capacity will likely be sufficient for additional boating activity associated with the Event. It will be important that these facilities maintain their equipment and supplies.

A special type of marine support service that will be prominent during the Events is the marine concierge service, also known as vessel or yacht agents. These are commonly utilized by the typical high-end yachting vessel that is expected with the Event and include a wide variety of services such as arranging berths, fueling, maintenance, and waste disposal for solid waste, bilge, sewage, and hazardous waste. This is expected to be a key resource for waste management of all types from the influx of boaters for the event.

The California Clean Boating Network (CCBN) and the Clean Marinas Program (CMP) both have developed comprehensive clean standards and recommendations for harbors and boaters. The San Francisco Department of Public Health (SFDPH), in partnership with the DTSC, recently published the Pollution Prevention Toolkit for Maritime Industries[14] that builds on the previous work of the CCBN and CMP. The Toolkit provides a comprehensive chart of the most common maritime pollutants of concern generated by maritime operations. These include nitrates, phosphates, surfactants (including nonylphenols), solvents, petroleum compounds, phthalates, bisphenol-A and metals such as copper, zinc, tributyltin, arsenic and mercury. The toolkit is intended to prevent the release of maritime pollutants to the environment through use of less toxic product or engineering alternatives, better management practices, and more effective outreach and education to boaters and users of marinas.

[14] St. Jean, Virginia, Pollution Prevention Toolkit for Maritime Industries, California Department of Toxics Substances Control, January 2011. Available at: http://www.sfdph.org/dph/files/EHSdocs/Green/MarineFinalReport.pdf

Section 4
Infrastructure and Facilities

This section describes the options for hazardous waste collection and management currently available to commercial and recreational boaters. It includes a discussion of the issues that event management faces within the existing hazardous waste management infrastructure, focusing on the challenges of handling hazardous waste generated by mariners who use the temporary floating docks to participate in the Event.

Consistent with state and local regulations, generators must properly discard their hazardous wastes at permitted storage facilities or the wastes must be transported to a treatment, storage, or disposal facility (TSDF) by registered hazardous waste transporter. Most shipments must be accompanied by a hazardous waste manifest.

4.1 Existing Infrastructure

Currently, hazardous waste generated by commercial boaters and recreational boaters in San Francisco can be brought to the Household Hazardous Waste (HHW) facility at 501 Tunnel Avenue (San Francisco Transfer Station). A commercial boater can use the HHW if it is based in San Francisco and if it qualifies under the terms of the Very Small Quantity Generator Program (VSQGP). See Section 4.2.1 below for program details. Any hazardous materials found abandoned at marinas managed by the SF Port are handled on an emergency response level under an Emergency Environmental Protection Agency (EPA) Identification number. SF Port Maintenance staff is trained in hazardous waste operations. Abandoned hazardous wastes are brought to the Port's Maintenance Yard located at Pier 50. An Emergency EPA ID number allows it to store and ship hazardous waste generated from abandoned hazardous waste to an appropriate TSDF. [15]

Commercial boaters may or may not have the resources to procure an EPA Identification number that allows them to participate in the VSQGP. Managing non-recyclable, unacceptable or abandoned HHW from boaters will likely remain a problem for harbormasters and marinas as most approved HHW facilities are inland, often in locations inconvenient to boaters with ground transportation required.

[15] Phone Conversation July 5, 2011 with Port staff

4.1.2 City of San Francisco Motor Oil Sheds at Marinas

There are three existing sheds for the collection of used motor oil from boaters who use SF Port or Park and Recreation marinas, (for locations, please refer to Map 4.1):

- SF Port Commercial Pier Fisherman's Wharf/Pier 47 area,
- SF Port Commercial Pier - Hyde St. Harbor
- Park and Recreation Pier – SF Marina Yacht Harbor

These sheds are designed to collect used oil, used oil filters, and oily debris including oil-stained absorbents and rags generated by boaters. Collection, consolidation and removal of used oil and used oil related discards is performed by Port Maintenance staff with funding provided by the City of San Francisco's Department of the Environment (SFE).

The motor oil sheds are self-service and can attract the illicit disposal of non-oil hazardous wastes. A short-term monitoring effort conducted in 2010 by San Francisco Department of the Environment staff found that 86% of abandoned waste left outside the used motor oil collection shed at Pier 47/Fisherman's Wharf was not oil-related.[16] However, there is no information on whether the waste was generated from maritime or land-based activities.

4.1.3 Used Oil Drop off Centers

There are 26 Certified Collection Centers (CCC) in the City. An individual can bring up to five gallons per day to a CCC and receive a small payment for their used oil. To locate the most up-to-date list of CCCs, an individual can search the CalRecycle Used Oil Page website: http://www.calrecycle.ca.gov.

There are additional drop-off opportunities in the City for latex paint, fluorescent tubes and bulbs, and most batteries. Information about these drop-off locations can be found at the SFE website using the EcoFinder tool. CCCs will accept used oil from any generator as long as it is free from contamination.

Insert G:\207xxx\D207515.00 - SF Multi-Sector Waste Diversion\03 Working Documents\AmericasCupWMP\WMP Update 7_1_2011\update task 8- haz plan\ sf marina used oil sheds.pdf

[16] Email correspondence with Cynthia Knowles, Toxics Reduction Specialist, San Francisco Department of the Environment, 7/1/2011

4.2. Household Hazardous Waste Facility

The City of San Francisco's Household Hazardous Waste (HHW) facility is located at 501 Tunnel Avenue at the San Francisco Transfer Station. It is open 8 A.M. - 4 P.M. on Thursdays, Fridays and Saturdays only and is operated by Recology San Francisco, the city's garbage, recycling and composting hauler. Only residents of San Francisco may use the facility to bring hazardous waste from their own home.

4.2.1 Very Small Quantity Generator Program

Very small generators and small businesses can access the HHW facility under certain conditions. One condition is that the business needs to be based in San Francisco.

Section 5
Issues and Recommendations

5.1 Hazardous Waste Issues Related to AC34

There is no fixed infrastructure for accepting hazardous waste from the public at the Port – As described in Section 4.1.2, the Port is already managing abandoned hazardous waste on its property. There is some concern that this situation might intensify with the influx of boats at temporary floating docks. Many harbors along the waterfront face challenges with abandoned HHW, especially those shown on Map 4.1, including the three marinas with the waste oil collection sheds. However, abandoned wastes at the oil sheds is not an ideal predictor for activity at the temporary floating docks which represent a very different boating demographic. The temporary floating docks are expected to accommodate high –end yachts with professional crews and the resources to utilize the mobile services available through yacht agents.

Motor oil sheds The three motor oil sheds on the San Francisco water are self-service and are intended primarily for the disposal of motor oil, filters and oily rags that are generated by recreational and commercial boaters at Fisherman's Wharf and recreational boaters at the San Francisco Marina. The high-end yachts that are expected with the Event will likely be professionally crewed and will be directed to use commercial services for the recycling and disposal of motor oils and related materials.

Limited access to the San Francisco HHW disposal facility – Access to San Francisco's HHW facility is limited to residents and businesses that can prove residency in the City. In addition, the facility is located five miles from the marina locations making it inaccessible to most visitors who arrive without landside transportation.

Expired flares **– Boats must carry three emergency flares, which expire after 36 months. A flare is a type of pyrotechnic that produces a brilliant light or intense heat without an explosion. The basic form is a tube packed with explosive chemicals that burn very brightly or gives off smoke, and is used to attract attention in an emergency. Special care is needed when disposing of expired flares, as they are considered a hazardous material. Facilities that accept expired flares are limited; the HHW facilities in Alameda County and the Marin HHW will accept expired flares from County residents only. San Francisco does not accept flares.**

Bilge and sewage pumpouts are near capacity – Convenient access to pump-outs for sewage and bilge water will help lower the releases of certain pollutants to the environment. Currently, 38 marinas have sewage pumpout systems in the Bay. Considering the boundaries and travel limitations during the race, ten marinas are expected to experience abnormal variance in their sewage pumpout usage due to their proximity to the event. Capacity for the Bay Area pumpout

systems may be exceeded at some locations by the large number of visiting boaters. The potential crowding resulting from increased use may deter many boaters from using the pumpout systems, leading to increased sewage discharge. In addition, there will be many large yachts (over 100 ft) that won't be able to access a majority of these pumpout systems.[17]

Universal Waste – e-waste, batteries, and fluorescent tubes need to be managed from the media centers and other administrative AC34 sites.

5.2 Hazardous Waste Management for AC34

To address the potential increase in vessel-generated hazardous waste associated with Event, the Project Sponsors will work to ensure that the informational resources are available to vessels at Event-sponsored temporary floating docks and that information is made available as required under permit requirements and CEQA mitigation for boaters and marinas throughout the bay. The following strategies, some of which are restated in Section 6: Outreach and Education, will be implemented, as required, by the Project Sponsors:

- Provide information for boaters about mobile bilge and sewage services. Conduct public outreach to permanent marinas about the importance of maintaining their equipment and supplies.

- Provide information for boaters about mobile oil change and collection services for oily waste materials at the temporary floating docks. Marine concierge service typically contract for these services for their client yachts.

- Provide information about best management practices for fueling including fuel pollution prevention tools such as fuel bibs, fuel doughnuts and "no spill" bottles to boating facilities with fueling services; and best management practices. To prevent oily discharges, the Project Sponsors will promote the proper use of oil absorbents in all powerboat bilges to capture small leaks and drips from the engines.

- Partner with Costal Commission and the California Department of Boating and Waterways to update the San Francisco Bay Area Clean Boating Map as appropriate to show bilge and sewage water pumpouts, and fueling (diesel and gasoline) stations. Additional updates might include a multilingual key that directs users to the various boating resources using internationally recognized icons.

- Develop outreach and education programs to promote proper handling of hazardous wastes at marinas including signage and kiosks (see next section for details) including lists of commercial mobile service providers.

[17] California Coastal Commission correspondence dated June 14, 2011 to San Francisco Department of the Environment

- Apply adaptive management techniques: following the 2012 events, evaluate assumptions, waste estimates, strategies, and the general success of the Event hazardous waste management effort and revise this plan accordingly for 2013 events.

- Arrange for disposal of universal wastes including unwanted or unusable electronics, i.e. e-waste generated by the Event at media centers and other administrative offices.

Section 6
Outreach and Education

6.1 Introduction

This section identifies specific groups who will need information about hazardous waste management and related services and identifies strategies to meet these needs.

Section 5.1.2 of the Zero Waste Plan highlights the opportunity to promote environmental responsibility:

> "AC34 is not only a major spectator and sporting event but also a large multi-year public event that will demonstrate both sustainability and environmental responsibility. As such, event producers and vendors will be required to not only provide landfill diversion options for event attendees, but will also be expected to adhere to local environmental policy, and should promote several sustainability messages as identified in this section. With hundreds of thousands of local and international visitors, the Event provides a unique opportunity for marketing and messaging waste reduction and diversion, as well as consumer and producer responsibility. "

Section 5.1.5 of the Zero Waste Plan discusses plastics and single use plastics in marine environments. Section 5.1.6 discusses signage which is further discussed below in the context of hazardous waste information dissemination.

Outreach and education directives are called for in **Mitigation Measure M-BI-12: Visiting Mariners Information** from the AC34 and Pier 27 DEIR. Specifically, Mitigation Measure M-BI-12 calls out three hazardous waste-related items to be included in the Visiting Mariners Information:

- Information on proper and legal waste handling in the Bay and facilities for onshore disposal during the AC34 activities;
- Information about onsite and nearby environmental services that support clean boating practices (such as the locations of sewage pumpouts, oil change facilities, used oil recycling centers, bilge pumpouts, absorbent pad distribution and spent pad collection, and boat-to-boat environmental services); and
- Signage posted at marinas, at berthing facilities, and adjacent to areas used by moored spectator vessels (10 vessels or more) regarding locations of waste collection containers.

To accomplish these, the Project Sponsors will work with the California Coastal Commission and the CA Department of Boating and Waterways to republish the San Francisco Bay Area Clean

Boating Map. The Project Sponsors will also partner with these agencies and the California Department of Toxic Substances Control to conduct outreach to existing marinas in the San Francisco Bay and to disseminate the forthcoming best management practices and recommendations for boatyards.

6.2 Boater Outreach

Providing boaters with information about hazardous waste management will be important to the success of this plan; responsibility for this is provided below. Many outreach strategies are articulated in the Draft EIR Mitigation Measure M-BI-12: Visiting Mariners Information (see below). Details of these outreach strategies will be included in the Water and Air Traffic Plan, as stipulated in the final EIR Mitigation Measure:

> "The visiting mariners information in the Water and Air Traffic Plan shall include details on how this information will be disseminated to visiting boaters, including but not limited to brochures or pamphlets; AC34 websites; boating, cruising, and newspaper periodicals; social media; and area yacht clubs and marinas….
>
> Due to the extent of berthing, mooring, and marina facilities within the Bay shoreline, the project sponsor shall coordinate with other jurisdictions with respect to waste management at secondary viewing areas, such as (but not limited to) Treasure Island, Angel Island, Sausalito, Belvedere, and Tiburon. Coordination and outreach efforts with those jurisdictions would further minimize the potential for discards and pollution to enter Bay waters from private vessels. Additionally, the project sponsor could develop, as part of official AC34 event literature, maps of the marinas that show the locations of fuel docks, sewage pumpouts, portable toilets, dump stations, used oil collection services, bilge pumpouts, oil absorbent pad distribution and collection services, oil change services, solid waste recycling services, and other environmental services for boaters"

For the purposes of addressing hazardous wastes from visiting boaters, many of the same outreach strategies are envisioned and described below.

6.2.2 Outreach Assets

Numerous educational assets that provide practical information to boaters and race teams' maintenance staff will likely include:

1. The San Francisco Bay Area Clean Boating Map
http://www.coastal.ca.gov/ccbn/SF_Bay_Clean_Boating_Map.pdf

2. The San Francisco Bay Pumpout Guide and Map for Boaters
http://www.sfestuary.org/userfiles/Bay%20Map.pdf
http://www.sfestuary.org/userfiles/Bay%20Guide.pdf

3. A Boater's Guide to Keeping Pollutants Out of the Water
http://www.coastal.ca.gov/ccbn/bindercard.pdf

4. A list of hazmat disposal service providers from the City's Department of the Environment. This list would not constitute an endorsement of any particular company.

6.2.3 Signage

The Project Sponsors will provide clear signage using internationally recognizable at all temporary floating Event docks. Further informational kiosks at Pier 47, Hyde St. Harbor and SF Marina Yacht Harbor are recommended to assist in information dissemination.

6.3. Media Headquarters

The Project Sponsors will provide options for the repair of electronic equipment, as well as the recycling of spent batteries, electronic media such as CD's and USB drives, and other items frequently disposed of by media staff, including press kits and binders.

6.4 Modes of Communication

When maintenance crews, office staff and sailing teams first arrive, the ACRM will provide trainings about how to properly dispose of their hazardous discards, to maximize recycling.

Many types of boaters are expected: super yachts, team base yachts, race management boats (jet skis and zodiacs), sponsor boats, charter boats, media boats and recreational boats. Communicating with these various boaters can take one or more of the following forms:

Berthing Agreement: The Event Authority and the Port will include language in their berthing agreements for recreational boaters that directs boaters to properly dispose of any hazardous wastes including information about where and how to do this.

Wharfingers: The Event Authority and the Port will work with wharf property management personnel to educate temporary berthers about clean boating practices.

Ship Agents: The Event Authority and the Port will communicate with Shipping Agents in advance of the arrival of spectator boats to inform them about clean boating practices and hazardous waste management disposal requirements and methodologies.

AC34 Event Website: The Event Authority will include on its website a page dedicated to clean boating practices including links to specific resources for locating hazmat disposal service providers (provided by the City).

Mobile Phone Application – The Project Sponsors will consider a mobile phone application to communicate available resources and provide real-time information to boaters in need of proper disposal information.

Participation in Educational Booths – The Project Sponsors will make available, where feasible, opportunities for representatives from local public and private institutions to staff education booths and provide information to seaside and landside spectators on green boating practices. Industry representatives might include Clean Marinas California Program, Recreational Boaters of California, Pacific Inter-Yacht Club Association and California HarborMasters and Port Captains Association.

Marina Operators – The Project Sponsors will include marina operators in San Francisco and its environs as a resource for boating related waste management tips including mobile oil changers, hazardous waste contractors, etc.

Social Media – The Project Sponsors will employ, as feasible, social media (Facebook and Twitter) to disseminate information related to green boating and hazardous waste prevention and management.

Addendum 2
Planning for Temporary Toilet Facilities for Event Venues

1.1 Planning for Temporary Toilet Facilities for AC34

AC34 is a large, multi-year spectator event, with food and beverage service, that will necessitate planning for temporary restroom facilities (facilities) for patrons. The management of these facilities will be critical to the seamless execution of the event and requires strategizing and forethought. The purpose of this addendum is to outline a plan that includes:

- describing the type of restroom facilities available;
- projecting the quantities of restroom facilities needed and mapping the existing water, sewer, and toilet infrastructure for event sites and transient routes;
- identifying and addressing service and maintenance needs for the use of temporary restroom facilities.

For informational purposes this addendum includes information for the Venues as well as other programmed sites.

1.2 Types of Temporary Toilet Facilities

The City of San Francisco was under contract for portable restroom services with United Site Services (USS), which both provides and maintains the temporary facilities. The current contract with USS ended June 30, 2011 and at the time of writing it is not known what service provider will assume the next contract. For the purpose of this report the project team consulted with USS to provide data on the types of toilets, as well as service details and their costs. The following sections describe examples of the types of temporary toilet facilities that will be needed for the Event, however the details and styles selected may vary and can be selected by the Project Sponsors.

1.2.1 Portable Toilets

Portable toilets, pictured in Figure 1.1 are standard accoutrements for outdoor and special events. There are many models and configurations available, the most basic containing simply a non-flushing toilet and/or urinal. A sewer safe deodorizer is utilized in these models to help minimize odors between service intervals. Portable toilets may be equipped with an in-unit sink or can be coupled with hand washing stations as described in Section 1.2.4 below to provide complete sanitation facilities at the AC34 event.

Figure 1.1
Portable Toilets

1.2.2

Restroom Trailers

Restroom trailers are portable toilet facilities that look and act much like a standard permanent restroom. A trailer unit with multiple (typically 3 or 4) restroom stalls can be situated near and connected to a sewer and water meter to provide potable water for flushing and hand washing. Wastes are flushed via a temporary waste line directly into the sewer. Restroom trailers can also be utilized in locations where a sewer and/or water meters are not accessible by utilizing an on-board holding tank for potable water and wastes. The trailer is then serviced by a Vactor (vacuum pump) truck to remove wastes (see Section 1.4.2.) and the fresh water tank is refilled. Restroom trailers may be powered by solar or connected to electricity, depending on the model.

Figure 1.3
Restroom Trailer and possible configuration.
There are many variations in the stall/sink layout of trailer facilities.

1.2.3 ADA Compliant Toilets

Toilets for disabled patrons of the Event, that allow for ample space and accessibility for individuals in wheelchairs according to ADA standards, will be required at the event for any location where temporary toilets are sited, including both restroom trailer and portable toilet locations. According to ADA standards, disabled-accessible toilets should account for 5% of the total toilet needs, or a minimum of one per toilet location, whichever is greater.[18]

Figure 1.2
ADA Compliant Portable

1.2.4 Hand Wash Station

FEMA guidelines for special events recommend that 1 hand washing sink with potable water be provided for every 3 toilets.[19] Portable hand washing units can be stationed near portable toilets and include a foot pedal operated pump. While some portable toilet models include a hand washing sink inside the unit, the external hand washing station may be preferable for several reasons including: 1) To better meet the recommended ratio of sinks to toilets, 2) They can be used for washing hands before eating without the need to enter a toilet facility, and 3) They can be easily accessed for the restocking of soap and paper towels.

Figure 1.4
Hand Washing Station

Hand washing stations are expected to generate large quantities of paper towel discards, which are compostable in San Francisco's Zero Waste programs. The Project Sponsors will use color coded, green receptacles placed next to hand sinks along with appropriate signage (see Figure 1.5 below) to help keep paper towels separate from other discards and divert them from landfill.

18 ADA Standards http://www.unitedsiteservices.com/restroom-planning/ada_reg.pdf
19 FEMA guidelines http://www.unitedsiteservices.com/restroom-planning/fema_secp.pdf

Figure 1.5
Graphic that can be used to create signage for diverting paper towel discards from landfill[20]

1.3 Toilet Costs

The following cost data in Table 1.1 was provided by the current contracted service provider United Site Services. Actual costs will vary based on rates at the time of event, toilet quantities, models selected, locations of toilets, and the frequency of service. There may also be additional charges for after hours service as needed.

Table 1.1
Current Cost Data from United Site Services[21]

Temporary Toilet Facilities
Estimate from United Site Services
Non-City Contract Price

Product	Cost per Event*
Event Portable Toilet	78.00
Wheelchair/Handicap and ADA Compliant Portable Restrooms	111.00
Restroom Trailer	3000.00
Portable Sinks	70.00
Service per Unit (Event Portable Toilet, ADA Restrooms, Portable Sinks)	10.00
Service per Restroom Trailer	125.00

1.4 Existing Infrastructure

The Project Sponsors will ensure that the selected facilities are sited in serviceable locations and will accommodate the quantities of spectators estimated to attend the Event. This will be based on consideration of the current toilet infrastructure, the number of estimated spectators, the active and passive event sites, and accessibility for service vehicles. This section addresses the existing facilities and infrastructure that will help inform decisions on where to locate temporary toilet facilities.

20 Design available from SF Environment by calling (415)355-3700 or at http://www.sfenvironment.org/downloads/library/papertowelssticker4_030109_1.pdf
21 Cost Estimates obtained from United Site Services, by Tom Carter, Port of SF on 7/7/2011

1.4.1 Existing Toilets and Passive Event Sites

Visitors to the Event are expected to congregate both at active event sites as well as to travel by foot or bicycle among these locations. These routes are considered passive event sites and may also require the addition of temporary toilet facilities.

Many of the event sites and visitor attractions located along the Event route have existing brick and mortar restroom facilities or maintain regular servicing of portable toilets. These existing facilities will be considered in calculating the number of toilets needed to accommodate Event visitors. Table 1.2 below lists the number of toilets and their locations as well as who is responsible for maintaining the facilities. Estimated walking times between restrooms located along SF Port property are included in Table 1.3. With an average of 4 minutes and 17 seconds walking time between these locations, and the longest walking time just under 9 minutes, the existing toilet infrastructure may reduce the need to install temporary toilet facilities along event routes expected to be traveled by foot or bicycle.

Table 1.2
Existing Toilet Infrastructure for SF Port and
NPS Properties Along AC34 Event Route

Location	Responsibility	Number of toilets
Pier 22 - Foot of Harrison Street	J C Deceaux	1
Ferry Building	Ferry Building Management	20
Pier 1	Pier 1 Management	4
Pier 7 - Foot of Broadway Street	J C Deceaux	1
Pier 39	Pier 39 Management	29
Pier 41	Pier 41 Management	5
Jefferson at Powell	J C Deceaux	2
Taylor at Little Embarcadero (Octagon Building)	SF Port	10
Aquatic Park	NPS	15
Fort Mason	NPS	9
Marina Green (East Marina) – Under Construction	SF Rec and Park	4
Marina Green (Harbor Office) – Expected for Renovation	SF Rec and Park	3
Marina Green (Little Marina Green) - Expected for Renovation	SF Rec and Park	10
Crissy Field (East)	NPS	10
Crissy Field (West)	NPS	7

Table 1.
Walking Times Between SF Port Properties Along AC34 Event Route

Locations From	To	Time Walking
Pier 22 (SFFD Boat)	Pier 22 (J C Deceaux Toilet)	0:00
Pier 22 (JC Deceaux Toilet)	Agriculture Building (North end)	7:47

Agriculture Building (North end)	Ferry Building (Center Doors)	2:24
Ferry Building (Center Doors)	Pier 1 (Center Doors)	3:15
Pier 1 (Center Doors)	Pier 3 (North of Drive Thru)	1:23
Pier 3 (North of Drive Thru)	Pier 7 (J C Deceaux Toilet)	2:09
Pier 7 (J C Deceaux Toilet)	Pier 27	8:17
Pier 27	Pier 33 (Alcatraz Landing)	5:35
Pier 33 (Alcatraz Landing)	Pier 39 (Main Entrance)	7:57
Pier 39 (Main Entrance)	Pier 41	2:21
Pier 41	Powell/Jefferson (JC Deceaux Toilet)	1:00
Powell/Jefferson (JC Deceaux Toilet)	Taylor/Little Embarcadero (Octagon Building)	5:59
Taylor/Little Embarcadero (Octagon Building)	Aquatic Park	6:37
	Total	**54:44**
	Average	**4:12**

1.4.2 Sewer Mains and Water Meters

The Port of SF and the Event Authority are interested in maintaining the aesthetic integrity of the San Francisco waterfront and shoreline, and as such have a preference toward utilizing restroom trailer facilities wherever possible. As outlined in the description of trailer facilities in Section 1.2.2., these restrooms may be connected directly to a sewer main and water meter or serviced by a Vactor truck. An analysis of the locations of sewer main locations along the Embarcadero, however, determined that sewer mains are accessed in lanes of traffic and consequently would prevent the restroom trailers from being connected directly[22]. Maps of sewer main and water meter locations along Port of SF property are available from the City.

1.4.3 Storm Water Catch Basins

Catch basins are the open grid metal grates that one sees along the curb within the road and are designed to capture storm water runoff. In no case will a restroom trailer be connected to a catch basin.

[22] Tom Carter, Port of SF performed analysis of sewer main and water meter locations along Port of SF property from Pier 22 to Aquatic Park

1.5 Service and Maintenance

Temporary toilet facilities, both trailer and portable toilets models, will need regular cleaning, restocking of supplies, and Vactor truck service. Section 1.6 describes the quantity of toilets needed for each location so that demands at peak times will be met; however the frequency of service should be varied based on the length of time of the events, and whether the events fall on weekend or weekdays. For event viewing locations, activities are expected to be conducted for 4 hours between 1pm and 5pm. Activities at the America's Cup Village are expected to last between the hours of 9:30 am and midnight. Due to the extended hours of operation at AC Village, it is likely that the toilet service frequency will need to be increased, possibly to two times per event day. Similarly, facilities in locations with fewer hours of operation may require service at intervals less than 1 time per event day.

1.5.1 Location and Accessibility

Facilities will need to be located in areas that are accessible by pump trucks that will evacuate the contents of the toilet holding tanks. Additionally, each toilet type has requirements that will affect where they can be located.

Portable toilets (including ADA-compliant models and portable hand washing sinks) can be placed on the sidewalk, alongside buildings or fences, or free standing, depending on the location. In areas of high wind, they can be anchored down with stakes.

Restroom trailer dimensions, at up to 10 feet wide, require that they displace street parking, but blocking traffic or bicycle lanes will be avoided. There are numerous locations along the event route that are suitable for siting restroom trailers. Vactor trucks will likely be needed to service restroom trailers in these locations due to sewer access being located in traffic lanes (see Section 1.4.2). Specially zoned parking spaces will not be displaced when siting restroom trailers.

1.6 Quantities

This section estimates the quantity of toilets that will be needed for each viewing and activity location for the event and is based on spectator estimates from the AECOM report, *Analysis of Potential Visitation Patterns for Americas Cup 34*, the duration of the events at each location, and estimate of toilet needs based on previous events. This information can be used to estimate the quantity of toilets, the frequency of service, and can help influence decisions about which types of toilets to utilize and in which locations. Data has been included for both 2012 (Table 1.4) and 2013 (Table 1.5) as spectator quantities and event locations are different for each year.

Table 1.4
Toilet Estimates for Landslide Spectators for 2012

Location	# of Spectators Per Day	Estimated # of Toilets per Site	Estimated # of ADA Handicap Toilets Per Site	Wash Station (assumes 2 sinks per unit)
LANDSIDE SPECTATORS				
Outside San Francisco				
Treasure Island	5,500	4	1	1
Alcatraz Island (private)	500	0	1	1
Angel Island	1,000	1	1	1
Fort Baker / Marin Headlands / North side of GGB	2,000	2	1	1
Cavallo Point (private and public)	800	1	1	1
Sausalito	3,500	3	1	1
Tiburon / Belvedere	1,000	1	1	1
Programmed Areas in San Francisco				
Justin Herman Plaza (Live Site)	5,000	4	1	1
Union Square (Live Site)	0	0	0	0
Civic Center (Live Site)	0	0	0	0
Marina Green	57,000	43	3	9
Piers 27 & 29	0	0	0	0
Crissy Field (Crissy Center to Pearce / Mason)	75,000	57	3	11
Non-Programmed Areas in San Francisco				
Presidio (incl. Crissy Picnic & west to south side of GGB	2,000	2	1	1
Fort Mason to Aquatic Park	3,000	2	1	1
Fisherman's Wharf	15,000	11	1	3
NE Embarcadero (Pier 42 to Fisherman's Wharf)	10,000	8	1	2
Other	3,000	2	1	1
Totals	**184,300**	**120**	**19**	**36**

1.6.1 Assumptions

The following assumptions were made in calculating the quantities shown in Tables 1.4 and 1.5:

1. Each toilet facility will be cleaned daily. Frequency of service may be adjusted up or down for non-peak, weekday, or extended hours at event locations as described in Section 1.4.1;
2. All events were assumed to be 6 hours in duration;
3. One Toilet per 1327 visitors per 6 hour period was calculated using data from Hartmann Studios, event planners for 4th of July, 2011 event along the San Francisco waterfront;
4. The ratio of hand wash stations is 1 sink for every 3 toilets, based on FEMA guidelines;

5. ADA-compliant toilets represent 5% of total facilities based on ADA guidelines.

Table 1.5
Toilet Estimates for Landslide Spectators for 2013

Location	# of Spectators Per Day	Estimated # of Toilets per Site	Estimated # of ADA Handicap Toilets Per Site	Wash Station (assumes 2 sinks per unit)
LANDSIDE SPECTATORS				
Outside San Francisco				
Treasure Island	12,000	9	1	1
Alcatraz Island (private)	500	0	1	1
Angel Island	1,000	1	1	1
Fort Baker / Marin Headlands / North side of GGB	3,500	3	1	1
Cavallo Point (private and public)	800	1	1	1
Sausalito	5,000	4	1	1
Tiburon / Belvedere	1,200	1	1	1
Programmed Areas in San Francisco				
Justin Herman Plaza (Live Site)			1	1
Union Square (Live Site)	8,000	6	0	0
Civic Center (Live Site)	6,000	5	0	0
Marina Green	6,000	5	3	9
Piers 27 & 29	55,000	41	0	0
Crissy Field (Crissy Center to Pearce / Mason)	50,000	38	3	11
Non-Programmed Areas in San Francisco				
Presidio (incl. Crissy Picnic & west to south side of GGB	5,000		1	1
Fort Mason to Aquatic Park	7,000	4	1	1
Fisherman's Wharf	25,000	5	1	3
NE Embarcadero (Pier 42 to Fisherman's Wharf)	48,000	19	1	2
Other	5,000	36	1	1
Totals	**316,000**	**214**	**24**	**56**

1.7 Summary

Due to the number of visitors to the Events in 2012 and 2013, the Project Sponsors will plan for the installation of temporary toilet facilities at active Venue locations. The demand for toilets along event routes may be partially satisfied by existing toilet infrastructure. Quantities estimated in this plan are designed to accommodate the maximum number of visitors expected for each event year. Special attention will be given in planning the frequency of service needed for each toilet.